

C550  
N87r  
1946/48



The Library  
of the  
University of North Carolina



Collection of North Caroliniana

This book was presented

by

The Department

C550

NB7r

1946/48

UNIVERSITY OF N.C. AT CHAPEL HILL



00033966138

*This book must not  
be taken from the  
Library building.*

AUG 7 1957

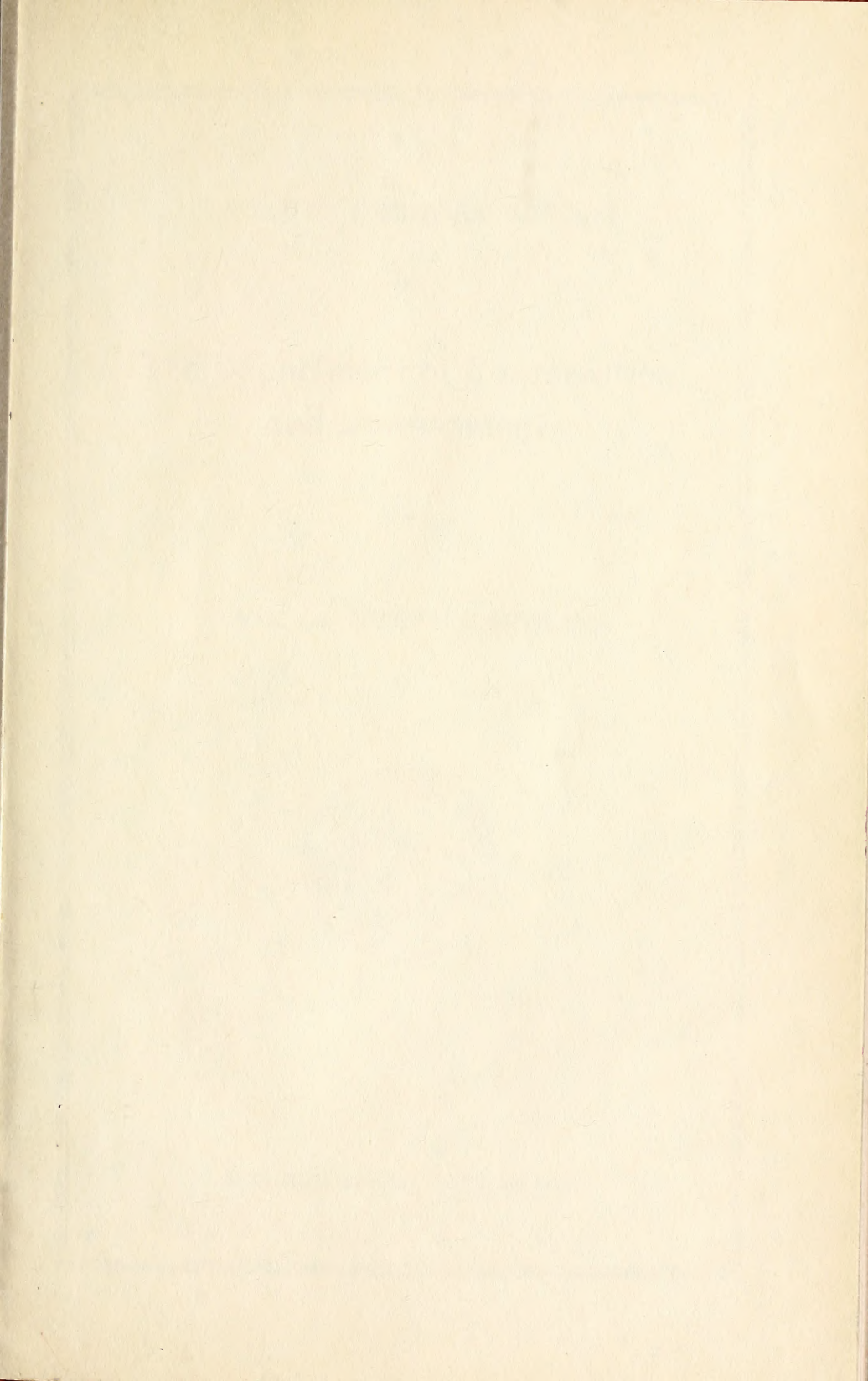
AUG 30 1957

~~30 Oct 1956~~

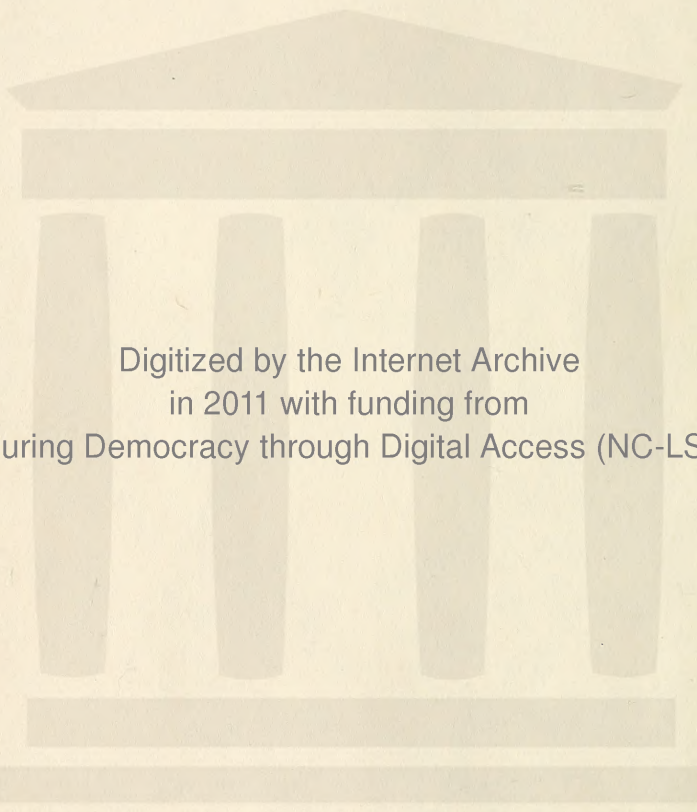












Digitized by the Internet Archive  
in 2011 with funding from  
Ensuring Democracy through Digital Access (NC-LSTA)



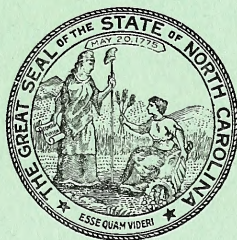
**TWELFTH BIENNIAL REPORT**

**OF**

**The Department of Conservation  
and Development**

**OF THE**

**STATE OF NORTH CAROLINA**



**BIENNIUM ENDING JUNE 30, 1948**







TWELFTH BIENNIAL REPORT  
OF  
The Department of Conservation  
and Development  
OF THE  
STATE OF NORTH CAROLINA  
BIENNIUM ENDING JUNE 30, 1948

---

BOARD OF CONSERVATION AND DEVELOPMENT

GOVERNOR R. GREGG CHERRY, <i>Chairman</i> .....	Raleigh
J. L. HORNE, <i>Vice Chairman</i> .....	Rocky Mount
CHARLES S. ALLEN .....	Durham
J. WILBUR BUNN .....	Raleigh
OSCAR P. BREECE .....	Fayetteville
K. CLYDE COUNCIL .....	Wananish
R. FLOYD CROUSE .....	Sparta
W. J. DAMTOFT .....	Canton
PERCY B. FEREBEE .....	Andrews
A. H. GUION .....	Charlotte
W. ROY HAMPTON .....	Plymouth
ROBERT W. PROCTOR .....	Marion
ERIC W. RODGERS .....	Scotland Neck
MILES J. SMITH .....	Salisbury
D. M. STAFFORD .....	Pomona
A. K. WINGET .....	Albemarle

---

R. BRUCE ETHERIDGE, *Director* ..... Raleigh

## LETTER OF TRANSMITTAL

Raleigh, N. C.  
October 15, 1948

TO HIS EXCELLENCY, HON. R. GREGG CHERRY  
*Governor of North Carolina*

Sir:

In accordance with Section 11, Chapter 122, Public Laws of 1925, and by direction of the Board of Conservation and Development, I have the pleasure of submitting herewith the Twelfth Report of the Department of Conservation and Development for the biennium ending June 30, 1948.

There are shown in this report a review of the activities of the Department during the last two-year period and a financial statement for the biennium.

Respectfully submitted

R. BRUCE ETHERIDGE,  
*Director.*

C 550

N 87 r

1946/48

10332



C550  
7872  
1946/48

**DEPARTMENT PERSONNEL AND  
PRINCIPAL OFFICERS**

(As of June 30, 1948)

**ADMINISTRATIVE**

R. BRUCE ETHERIDGE, *Director*  
PAUL KELLY, *Assistant Director*  
W. RAY BISHOP, *Chief Auditor*  
EVELYNE YELVERTON, *Senior Stenographer-Clerk*  
GLADYS BLACK, *Senior Stenographer-Clerk*  
EULA LINCOLN, *Senior Accounting Clerk*  
NELL WELLS, *Senior Stenographer-Clerk*  
MRS. LEONA W. BAGLEY, *Senior Stenographer-Clerk*  
L. W. BUNN, *Principal General Clerk*  
MRS. ANNIE W. RAGLAND, *Junior General Clerk*  
MRS. RUBY F. SINK, *Principal Supply Clerk*

**DIVISION OF COMMERCIAL FISHERIES**

CAPT. JOHN A. NELSON, *Commissioner*  
D. M. DAVIS, *Assistant Commissioner*  
THOS. A. BASNIGHT, *Assistant Commissioner*  
N. R. WEBB, *Principal Accounting Clerk*  
N. MCKEITHAN CALDWELL, *District Sanitarian*  
MARY E. WILLIS, *Senior Stenographer-Clerk*

**DIVISION OF COMMERCE AND INDUSTRY**

PAUL KELLY, *Industrial Engineer*  
PHILIP SCHWARTZ, *Industrial Analyst*  
W. C. GUTHRIE, *Industrial Representative*  
H. P. COTTON, *Chief, Rural Industries*  
M. M. CROOM, *Assistant Industrial Engineer*  
R. T. ISLEY, *Assistant Industrial Engineer*  
C. D. KIRKPATRICK, *Assistant Industrial Engineer*  
MARY LEE COWPER, *Senior Stenographer-Clerk*  
MRS. MARY WATKINS, *Senior Stenographer-Clerk*  
MRS. VIRGINIA EDWARDS, *Senior Stenographer-Clerk*

**DIVISION OF MINERAL RESOURCES**

JASPER L. STUCKEY, *State Geologist*  
SAM D. BROADHURST, *Assistant State Geologist*  
PHILIP N. SALES, *Senior Chemist*  
E. WILLARD BERRY, *Associate Geologist (part time)*  
MRS. LOIS CATES, *Senior Stenographer-Clerk*

## DIVISION OF FORESTRY AND PARKS

W. K. BEICHLER, *State Forester*  
F. H. CLARIDGE, *Assistant Forester (Management)*  
P. W. TILLMAN, *Acting Assistant Forester (Fire Control)*  
THOMAS W. MORSE, *Superintendent of State Parks*  
ROBERT W. SHAW, *Assistant Forester (Information and Education)*  
W. J. CLARK, *Chief Forest Inspector*  
———, *Forest Inspector*  
———, *Management Forester*  
ROGER D. HUFF, *Management Forester (in cooperation with*  
U. S. Forest Service)  
CHARLIE C. STOTT, *Assistant Superintendent of State Parks*  
P. A. GRIFFITHS, *Management Assistant*  
R. A. MORIN, JR., *Management Assistant*  
PAUL DILLON, *Radio Engineer*  
ARCHIE B. SMITH, *Equipment Supervisor*  
M. M. CARSTARPHEN, *Law Enforcement Ranger*  
THOMAS L. NOOE, *Principal Engineer*  
BERT A. HEIDEIBACH, *Senior Landscape Engineer*  
MRS. GRACE W. PREVOST, *Principal Accounting Clerk*  
CARRIE LEE WALTERS, *Senior Stenographer-Clerk*  
MRS. MABEL D. YOUNG, *Senior Stenographer-Clerk*  
EVELYN SANDERS, *Senior Accounting Clerk*  
MRS. W. FRANK BELL, *Senior Accounting Clerk*  
MRS. MILDRED G. SADLER, *Senior Accounting Clerk*  
MARGARET HONEYCUTT, *Senior Stenographer-Clerk*  
MARTHA MAYO, *Junior Stenographer-Clerk*  
MRS. I. H. HINTON, *Junior Stenographer-Clerk*  
———, *Junior Stenographer-Clerk*

### DISTRICT FORESTERS

B. H. CORPENING, Asheville	L. E. HICKS, Fayetteville
D. J. MARTZ, Lenoir	JAMES B. HUBBARD, Elizabeth City
JAMES A. PIPPIN, Rockingham	JOSEPH HERLEVICH, Whiteville
RALPH C. WINKWORTH, New Bern	CHARLES C. PETTIT, Sylva
H. L. TERRY, Rocky Mount	O. C. GOODWIN, Lexington

### FARM FORESTERS

———, Asheville	———, Edenton
———, Morganton	———, Durham
———, Rockingham	———, Whiteville
———, Lexington	

### ASSISTANT DISTRICT FORESTERS

F. H. LEDBETTER, Asheville	VICTOR HERLEVICH, Fayetteville
———, Rockingham	R. J. ROBERTSON, Elizabeth City
———, New Bern	FRANK N. CRAVEN, Whiteville



## FOREST NURSERY FORESTER

FRANK J. MILLER, Clayton Nursery    T. C. SIDNEY, Holmes Nursery

## STATE FOREST

RUFUS H. PAGE, *Supervisor*

THOMAS C. ELLIS, *State Forest Ranger*

NASH TATUM, *Woods Superintendent*

MARTHA FRANCES YOUNG, *Junior Stenographer-Clerk*

## DISTRICT FOREST RANGERS

T. E. BEGLEY, Asheville

E. P. SIMMONS, Lenoir

A. D. WILLIAMS, Lenoir

N. T. FAULKNER, Rockingham

L. W. DAVIS, New Bern

E. C. FEREBEE, New Bern

SEBA WOOTEN, Rocky Mount

T. R. McMILLAN, Fayetteville

T. F. LOWRY, Elizabeth City

LARUE McQUEEN, Whiteville

MACK ASHE, Sylva

## DISTRICT OFFICE STENOGRAPHER-CLERKS

MRS. ELIZABETH W. WEST, Asheville    ANNA CAMPBELL, Fayetteville

MRS. MARY P. CLARK, Lenoir

ELIZABETH HARRELL, Elizabeth City

MRS. DOROTHY SANFORD, Rockingham    PRUDENCE TODD, Whiteville

MRS. META B. BAKER, New Bern

CAROLYN LEWIS, Sylva

MRS. JULIA A. TYSON, Rocky Mount

MYRA JEAN CRAVER, Lexington

## STATE PARK SUPERINTENDENTS

RAYMOND M. SISK, Crabtree Creek    JACK H. SKINNER, Hiwassee Lake

WILLIAM G. WILDER, Morrow Mountain

## STATE PARK RANGERS

EMORY C. SUIT, Hiwassee Lake

GEORGE H. SUTTON, Cliffs of the Neuse

CHARLIE C. WOOD, Hiwassee Lake

## STATE PARK WARDENS

CLARENCE H. BRITT, Crabtree Creek

THOMAS F. DAVENPORT, Pettigrew

JAMES F. ELLIS, Crabtree Creek

THOMAS C. ELLIS, Bladen Lakes

CARL R. FLINCHUM, Hanging Rock

JESSE LONG, Fort Macon

CHARLIE J. MILLS, Morrow Mountain

GRADY L. MILLS, Morrow Mountain

VERNIE B. MURPHY, Mount Mitchell

SAM PARKER, Bladen Lakes

GUSS PATTERSON, Hiwassee Lake

ROY L. PATTERSON, Hiwassee Lake

DENNIS H. PHELPS, Pettigrew

GEORGE D. SANDERS, Fort Macon

JAMES R. SPEER, Hanging Rock

JOHN R. WILSON, Mount Mitchell

MRS. BEULA H. FRANKS, *Junior Stenographer-Clerk*, Hiwassee Lake

## DIVISION OF STATE ADVERTISING AND NEWS

W. P. SHARPE, *Manager*

JOHN G. HEMMER, *Senior Publicity Specialist*

E. CARL SINK, *Senior Publicity Specialist*

MRS. LOUISE M. RAGLAND, *Senior Stenographer-Clerk*

MRS. EDITH YOUNG, *Junior Stenographer-Clerk*

MRS. GLORIA JONES, *Senior General Clerk*

THOMASENE CATES, *Junior General Clerk*

## DIVISION OF WATER RESOURCES AND ENGINEERING

W. H. RILEY, *Principal Engineer*

F. E. DAY, *Associate Engineer*

GEORGE F. CATLETT, *Principal Engineer*

EARLE J. AXE, *Senior Engineer*

JOHN W. CRONE, *Associate Chemist*

LOUIS F. LAWLER, *Junior Sanitary Engineer*

CHAS. L. TUCKER, *Junior Chemist*

MRS. SALLAINE UPCHURCH, *Junior Stenographer Clerk*



## REPORT OF DIRECTOR

Activities of the various Divisions of the Department are covered under the sections of this report allotted to each, and, therefore, they will not be reviewed here, except for supplementation in a few cases.

In this part of the report, those items which do not fall under the various Divisional activities or those whose activities come under the direction of more than one will be mentioned.

### MARINE CENTER

Early in the period of liquidation of war projects, word came to the Department that the Coast Guard Section Base, formerly the National Guard training center near Morehead City, would be declared surplus and probably sold.

Immediately a movement began within the Board to acquire the area which included a well developed center of buildings, improvements, and equipment for an administrative, research, and educational project for marine life. Consequently, the property was purchased from the Federal government.

Interest on the part of the University of North Carolina and N. C. State College in the project was solicited, and as a result the Institute of Fisheries Research, for fisheries research purposes, and the Morehead City Technical Institute, for vocational training of fishermen, were established. Headquarters of the Division of Commercial Fisheries were also moved to the area. An added service of the base is in providing divisional headquarters of the State Highway Patrol.

As a result of efforts of the University, a grant of \$250,000 from the Knapp Foundation provided financial backing for an enlarged marine life research program. Already a number of projects which give promise of being of widespread benefit to the fishing industry have been undertaken. The Institute is taking over the responsibility of studying several current problems which affect the industry. The Technical Institute is operating for its second year, and has enrolled a group of young men who plan to enter the fishing industry and who seek guidance in this vocation.

### MINERALS RESEARCH LABORATORY

North Carolina was formerly known as "the sample case of Nature," the implication being that there were few minerals of commercial value in the State in spite of the fact that the variety is the largest in any state.

Through the Division of Mineral Resources, the Department has long been engaged in searching out the minerals of commercial value and bringing them to the attention of the nation. A new step in this direction was taken in 1946 when the Minerals Research Laboratory was established in Asheville through the cooperation of this Department with N. C. State College, the Tennessee Valley Authority, and the City of Asheville.

This laboratory is for the primary purpose of conducting experiments in mineral dressing, thus to find processes for the preparation of various raw materials for manufacture. Already work of the Laboratory has shown a use for some low grade minerals formerly not known to be of commercial value because methods of refinement were not developed.

Several additional projects designed to point out the commercial value of various North Carolina minerals for industrial use are now under way and contemplated at the laboratory.

### TRYON'S PALACE

In 1945, the General Assembly appropriated \$150,000 for the purchase of the site of Tryon's Palace at New Bern in order that the State might avail itself of the generous offer of Mrs. J. E. Latham, of Greensboro, to provide for the restoration of the famous building.

Mrs. Latham has placed \$100,000 of a fund of \$250,000 in trust and has given notice of her readiness to put up the remaining amount.

Various problems have arisen with reference to the restoration project, and will need to be solved before it can go forward. A step in this direction is a bill which has been drawn up by the Attorney General and which will be offered in the General Assembly of 1949. Among the various problems are final selection of the right-of-way of a new highway which will pass by the property, and assurance that funds available for the purchase of the site and the restoration will be adequate for these purposes.

Every effort will be made to assure the continuation of the project. The restored palace is expected to be one of the show places of the State and an outstanding tourist attraction.

### SEAFOOD INVESTIGATIONS

At the request of the Department, the General Assembly of 1947 provided funds for studying, preserving and developing the shrimp and shellfish industries. A multitude of questions concerning the life habits and environments of these seafoods require solution if they are to continue to exist and prosper. The sum of \$50,000 was allotted to the shrimp work and \$100,000 to shellfish. The studies are being undertaken by the Institute of Fisheries Research.

### RESOURCE-USE COMMISSION

In 1946, Governor R. Gregg Cherry appointed the N. C. Resource-Use Education Commission, consisting of representatives of 50 agencies of the State. As connoted by its name, the Commission is pursuing an educational program seeking to bring about the fullest utilization of the natural, human, and social resources of the State.

The Department has participated in the program and has had a representative on the Executive Committee since the beginning. Initially, finances for the program have been furnished by a grant from the General Education Board, but it is anticipated that the program may be continued as a function of the State Department of Public Instruction.



## HISTORICAL MARKERS

After a necessary war-time suspension, the historical marker program was resumed during the latter part of 1947 when a new design was adopted and a new contract let.

From 1936, when the first markers were erected, until work halted temporarily in 1942, a total of 440 markers had been approved. During this period, the cost of each marker was approximately \$40 and it was possible to erect more than 100 markers annually with the \$5,000 available each year. However, the current unit cost limits the number of markers annually to about 65.

Some of the changes in design are the use of upper and lower case lettering in the body of the inscription instead of all capitals; a new style post; and separate casting of the marker plate and the stirrup into which it fits. All of the new markers are cast of aluminum.

Between the resumption of the program and the end of the biennium, 42 new markers were approved and 23 damaged units were replaced. This program is a three-way cooperative project in which the Department of Archives and History, the State Highway and Public Works Commission, and the Department of Conservation and Development participate.

## DIVISIONAL CHANGES

Because of the rapid growth of State Park work in scope and importance, it was decided, upon the recommendation of the Director and State Forester, at the last Board meeting in the biennium to set up a separate Division of State Parks. The change is scheduled to be made with the start of the new fiscal year, July 1, 1948.

The State Parks work grew up within the Division of Forestry since the initial program was handled by J. S. Holmes, the first State Forester and the only individual to hold that position until he retired and was succeeded by State Forester W. K. Beichler.

As decreed by the General Assembly of 1947, the Division of Game and Inland Fisheries of this Department became the N. C. Wildlife Resources Commission on July 1, 1947, an independent State agency.

The Division of Game and Inland Fisheries grew out of the game program authorized by the first State-wide Game Law in 1927 whose administration was placed under the Department of Conservation and Development, and the inland fisheries program which was formerly under the old Commercial Fisheries Commission, merged with the Department in 1927. Only the first year's fiscal report of the Division of Game and Inland Fisheries is included in this report since other activities will be covered by the Wildlife Resources Commission.

DEPARTMENT OF CONSERVATION AND DEVELOPMENT  
APPROPRIATIONS DIVISION MAINTENANCE FUNDS

STATEMENT OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
<b>I. ADMINISTRATION</b>		
DISBURSEMENTS:		
Board of Directors:		
Attending Meetings.....	\$ 3,210.68	\$ 4,668.14
Director's Office		
Salary- Director.....	6,000.00	6,600.00
Salaries and Wages-Staff.....	20,682.57	28,417.98
Supplies and Materials.....	474.85	500.27
Postage, Tel Teleg and Express.....	695.43	680.05
Travel Expense.....	471.97	719.53
Printing and Binding.....	833.30	1,133.91
Repairs and Alterations.....	132.35	147.16
General Expense.....	87.94	85.31
Equipment.....	240.55	898.10
<b>TOTAL</b> .....	\$ 32,829.64	\$ 43,850.45
Less Receipts:		
Sale of Publications.....	\$ 212.80	\$ 178.10
Payment from Division of Game and Inland Fisheries for Attending Meetings.....	600.00	-----
Transferred from Preceding Year.....	-----	800.00
<b>TOTAL</b> .....	\$ 812.80	\$ 978.10
<b>APPROPRIATION</b> .....	\$ 32,016.84	\$ 42,872.35
<b>II. COMMERCE AND INDUSTRY</b>		
DISBURSEMENTS:		
Salaries and Wages.....	\$ 20,540.11	\$ 30,121.03
Supplies and Materials.....	691.36	1,860.89
Postage, Tel Teleg & Express.....	2,588.18	4,098.80
Travel Expense.....	3,524.89	4,932.18
Printing and Binding.....	1,035.29	2,630.49
Repairs and Alterations.....	212.72	104.55
General Expense.....	807.63	976.74
Motor Vehicle Operation.....	422.93	521.78
Equipment.....	610.34	988.05
Motor Vehicle Purchase.....	62.11	1,212.00
<b>APPROPRIATION</b> .....	\$ 33,495.56	\$ 47,446.51
<b>III. ADVERTISING:</b>		
DISBURSEMENTS:		
Salaries and Wages.....	\$ 15,968.71	\$ 20,092.32
Supplies and Materials.....	2,893.05	3,508.98
Postage, Tel Telegs and Express.....	3,554.70	4,807.75
Travel Expense.....	2,739.22	3,086.69
Printing and Binding.....	11,591.31	16,820.78
Repairs and Alterations.....	81.18	242.54
Direct Advertising.....	68,578.43	142,487.99
General Expense.....	2,013.58	3,738.11
Equipment.....	349.04	999.04
Motor Vehicle Operation.....	533.39	1,375.46



## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
III. ADVERTISING—Continued:		
DISBURSEMENTS—Continued:		
Motor Vehicle Exchange .....	\$ 1,556.50	\$ 1,167.34
Southern Governor's Conference .....		4,374.26
TOTAL .....	\$ 109,877.11	\$ 202,701.26
Less Receipts:		
Sale of Publications .....	19.50	34.30
APPROPRIATION .....	\$ 109,857.61	\$ 202,66.696
IV. WATER RESOURCES:		
DISBURSEMENTS:		
Salaries and Wages .....	\$ 9,597.00	\$ 22,851.57
Supplies and Materials .....	191.11	1,213.38
Postage, Tel Teleg and Express .....	54.97	135.02
Travel Expense .....	698.62	3,228.29
Printing and Binding .....	502.94	534.31
Motor Vehicle Operation .....	693.46	1,291.97
Repairs and Alterations .....	80.49	1,000.33
Cooperation U. S. Geological Survey .....	15,000.00	20,000.00
Cooperation U. S. Geological Survey-Chemical .....	6,500.00	7,300.00
General Expense .....	25.00	615.69
Equipment .....	967.37	3,230.58
Stream Sanitation Investigation .....		1,000.00
TOTAL .....	\$ 34,310.96	\$ 62,401.14
Less Receipts:		
Private Cooperation .....	\$ 950.00	\$ 950.00
Payment from Board of Health-Water Investigation .....	2,500.00	2,500.00
TOTAL .....	\$ 3,450.00	\$ 3,450.00
APPROPRIATION .....	\$ 30,860.96	\$ 58,951.14
V. MINERAL RESOURCES:		
DISBURSEMENTS:		
Salaries and Wages .....	\$ 12,480.00	\$ 13,831.09
Supplies and Materials .....	139.57	173.13
Postage, Tel Teleg and Express .....	222.96	298.00
Travel Expense .....	656.58	776.20
Printing and Binding .....	1,173.81	2,430.02
Motor Vehicle Operation .....	853.65	915.47
Repairs and Alterations .....	6.30	36.71
General Expense .....	12.60	77.68
Cooperation U. S. Geological Survey-Ground Water Study .....	4,000.00	3,880.00
Cooperation U. S. Geological Survey-Minerals .....	3,562.38	2,266.46
Cooperation T. V. A. Minerals Study .....	1,661.67	4,353.89
Cooperation U. S. Geological Survey-Water analysis .....		250.00
Motor Vehicle Exchange .....	497.86	749.49
Equipment .....		452.37
Cooperation U. S. Geological Survey-Geographic Mapping .....	5,000.00	
APPROPRIATION .....	\$ 30,267.38	\$ 30,490.51

## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VI. FOREST FIRE PREVENTION:		
DISBURSEMENTS:		
Administration:		
Salaries and Wages.....	\$ 23,571.25	\$ 31,767.73
Supplies and Materials.....	388.25	468.19
Postage, Tel Teleg and Express .....	1,063.49	1,754.66
Travel Expense.....	2,481.97	2,397.42
Printing and Binding.....	1,504.80	3,192.06
Motor Vehicles Operation.....	2,739.18	2,819.05
Repairs and Alterations.....	103.72	837.01
Equipment.....	1,675.68	10,697.20
Motor Vehicle Purchase.....	3,424.77	6,554.78
Insurance and Bonding.....	875.00	716.44
Workmen's Compensation.....	1,993.01	3,339.07
Indemnities and Awards.....		2,143.50
Buildings.....		5,280.01
Emergency Salary.....	1,152.26	
Emergency Bonus.....	2,304.00	
TOTAL.....	\$ 43,327.38	\$ 71,967.12
Cooperative Projects:		
Salaries-Wardens & Rangers.....	\$ 116,787.02	\$ 186,670.87
Wages-Towermen and Firemen.....	84,043.15	102,578.81
Expense-Fire Wardens.....	4,608.41	7,522.37
Fire Control Equipment.....	51,499.40	93,111.97
Repairs and Alterations.....	11,489.57	10,218.77
Lookout Towers.....	10,406.34	28,207.63
Telephone Lines.....	2,480.45	6,515.53
Buildings.....	6,156.79	6,870.37
Roads and Fire Lines.....	4,600.63	4,380.81
Fire Suppression.....	6,527.87	4,764.11
Motor Vehicle Operation.....	30,879.60	49,008.03
Emergency Salary.....	9,591.62	
Emergency Bonus.....	14,994.06	
TOTAL.....	\$ 354,064.91	\$ 490,849.27
District No. 1—Asheville:		
Salaries and Wages.....	\$ 6,085.00	\$ 9,930.00
Postage, Tel Teleg and Express.....	217.49	222.26
Travel Expense.....	449.20	593.25
Motor Vehicle Operation.....	883.43	1,274.49
Lights and Water.....		25.47
Rent.....	70.00	
Emergency Salary.....	360.00	
Emergency Bonus.....	678.00	
TOTAL.....	\$ 8,743.12	\$ 12,045.47
District No. 2—Lenoir:		
Salaries and Wages.....	\$ 6,000.00	\$ 8,700.00
Postage, Tel. Teleg and Express.....	167.67	253.32
Travel Expense.....	364.29	594.05
Motor Vehicle Operation.....	987.08	1,527.14
Lights.....		13.47
Emergency Salary.....	360.00	
Emergency Bonus.....	690.00	
TOTAL.....	\$ 8,569.04	\$ 11,087.98



## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VI. FOREST FIRE PREVENTION—Continued:		
District No. 3		
Rockingham:		
Salaries and Wages.....	\$ 6,229.36	\$ 8,035.00
Postage, Tel Teleg and Express.....	185.77	329.11
Travel Expense.....	643.67	914.60
Motor Vehicle Operation.....	1,007.92	1,204.22
Lights.....		12.00
Emergency Salary.....	355.16	
Emergency Bonus.....	685.11	
TOTAL.....	\$ 9,106.99	\$ 10,494.93
District No. 4		
New Bern:		
Salaries and Wages.....	\$ 9,570.67	\$ 11,096.37
Postage, Tel Teleg and Express.....	221.45	288.68
Travel Expense.....	667.80	1,041.93
Motor Vehicle Operation.....	1,723.46	1,787.06
Lights.....	24.26	55.98
Emergency Salary.....	549.51	
Emergency Bonus.....	1,119.13	
TOTAL.....	\$ 13,876.28	\$ 14,270.02
District No. 5		
Rocky Mount:		
Salaries and Wages.....	\$ 5,483.65	\$ 7,122.50
Postage, Tel Teleg and Express.....	311.70	502.11
Travel Expense.....	567.32	666.14
Motor Vehicle Operation.....	1,094.59	1,222.66
Lights.....	30.58	38.39
Emergency Salary.....	340.00	
Emergency Bonus.....	648.00	
TOTAL.....	\$ 8,475.84	\$ 9,551.80
District No. 6		
Fayetteville:		
Salaries and Wages.....	\$ 7,641.93	\$ 9,436.99
Postage, Tel Teleg and Express.....	208.32	326.00
Travel Expense.....	506.04	578.48
Motor Vehicle Operation.....	1,272.88	1,365.77
Lights.....	4.70	14.80
Emergency Salary.....	425.80	
Emergency Bonus.....	871.57	
TOTAL.....	\$ 10,931.24	\$ 11,722.04

## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VI FOREST FIRE PREVENTION—Continued:		
District No. 7		
Elizabeth City:		
Salaries and Wages.....	\$ 7,851.53	\$ 10,390.00
Postage, Tel Teleg and Express.....	214.52	354.64
Travel Expense.....	714.71	1,151.90
Motor Vehicle Operation.....	1,462.76	1,537.86
Rents.....	305.26	352.00
Lights.....	110.22	71.68
Emergency Salary.....	447.97	-----
Emergency Bonus.....	858.58	-----
TOTAL.....	\$ 11,965.55	\$ 13,858.08
District No. 8		
Wilmington:		
Salaries and Wages.....	\$ 6,791.29	\$ 7,901.00
Postage, Tel Teleg and Express.....	251.48	265.74
Travel Expense.....	431.44	698.74
Motor Vehicle Operation.....	1,221.50	1,636.78
Rents.....	168.15	455.00
Lights and Power.....	33.67	45.36
Emergency Salary.....	413.33	-----
Emergency Bonus.....	693.68	-----
TOTAL.....	\$ 10,004.54	\$ 11,002.62
District No. 9		
Sylva:		
Salaries and Wages.....	\$ 5,920.00	\$ 7,680.00
Postage, Tel Teleg and Express.....	210.62	220.44
Travel Expense.....	591.00	712.59
Motor Vehicle Operation.....	1,014.71	1,152.64
Rents.....	441.50	480.00
Lights and Power.....	4.50	20.00
Emergency Salary.....	360.00	-----
Emergency Bonus.....	666.00	-----
TOTAL.....	\$ 9,208.33	\$ 10,265.68
District No. 10		
Lexington:		
Salaries and Wages.....		\$ 2,354.10
Postage, Tel Teleg and Express.....		94.63
Travel Expense.....		122.52
Motor Vehicle Operation.....		407.17
Rents.....		245.00
Lights and Power.....		7.40
TOTAL.....		\$ 3,230.82
TOTAL Forest Fire Prevention.....	\$ 488,273.22	\$ 670,345.83



## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VI. FOREST FIRE PREVENTION—Continued:		
Less Receipts:		
Federal Cooperation.....	\$ 183,221.00	\$ 233,052.00
County Cooperation.....	132,115.52	125,879.19
Private Cooperation.....	18,980.60	17,783.32
Transferred from Preceding Year.....		17,216.00
TOTAL.....	\$ 334,317.12	\$ 393,930.51
APPROPRIATION.....	\$ 153,956.10	\$ 276,415.32
VI-A. FOREST FIRE PREVENTION:		
Supplemental Budgets:		
DISBURSEMENTS:		
Plowing Fire Lines		
Wages-Operators, Helpers.....	\$ 3,007.76	\$ 1,345.02
Expenses-Operators, Helpers.....	94.02	204.56
Motor Vehicle Operation.....	2,498.70	3,802.48
Repairs and Alterations.....	1,603.76	494.87
Equipment.....	833.62	1,779.14
TOTAL.....	\$ 8,837.86	\$ 7,626.07
T. V. A. Project No. 8:		
Salaries and Wages.....	\$.....	\$ 220.00
Wages-Towermen and Firemen.....		8,089.34
Travel Expense.....		238.05
Motor Vehicle Operation.....		750.80
Equipment.....		6,699.85
Lookout Towers.....		2,148.69
TOTAL.....	\$.....	\$ 18,146.73
T. V. A. Project No. 3:		
Salaries and Wages.....	\$ 1,802.97	\$.....
Wages-Towermen and Firemen.....	828.84	
Supplies and Materials.....	66.67	
Postage, Tel Teleg and Express.....	48.25	
Travel Expense.....	254.73	
Motor Vehicle Operation.....	386.03	
Equipment.....	166.42	
Lookout Towers.....	20.00	
Telephone Lines.....	62.00	
Roads and Fire Lines.....	317.96	
Buildings.....	259.57	
Emergency Salary.....	109.35	
Emergency Bonus.....	223.33	
TOTAL.....	\$ 4,546.12	\$.....
T. V. A. Project No. 5:		
Salaries and Wages.....	\$ 1,470.00	\$.....
Travel Expense.....	284.49	105.00
Motor Vehicle Operation.....	565.78	165.00
TOTAL.....	\$ 2,320.27	\$ 270.00
TOTAL SUPPLEMENT.....	\$ 15,704.25	\$ 26,042.80

## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VI-A. FOREST FIRE PREVENTION—Continued:		
Supplemental Budgets:		
Less Receipts:		
Private Cooperation—Fire Lines.....	\$ 9,657.00	\$ 7,429.86
Federal Cooperation—T. V. A.....	7,166.60	19,019.92
Transferred from Preceding Year.....		660.00
TOTAL.....	\$ 16,823.60	\$ 27,109.78
APPROPRIATION.....	\$ +1,119.35	\$ +1,066.98
VII. GENERAL FORESTRY:		
DISBURSEMENTS:		
Salaries and Wages.....	\$ 6,984.57	\$ 10,409.89
Supplies and Materials.....	235.85	330.92
Postage, Tel Teleg and Express.....	274.38	381.71
Travel Expense.....	581.20	725.39
Printing and Binding.....	1,096.69	1,004.32
Motor Vehicle Operation.....	446.82	898.30
General Expense.....	65.94	68.00
Equipment.....	769.74	2,639.04
Motor Vehicles Exchange.....	136.25	1,923.36
TOTAL.....	\$ 10,591.44	\$ 18,380.93
Less Receipts:		
Transferred from Preceding Year.....		1,055.00
APPROPRIATION.....	\$ 10,591.44	\$ 17,325.93
VIII. STATE FORESTS AND PARKS:		
DISBURSEMENTS:		
Administration:		
Salaries and Wages.....	\$.....	\$ 16,675.50
Supplies and Materials.....		199.67
Postage, Tel Teleg and Express.....		441.57
Travel Expense.....		1,127.89
Printing and Binding.....		504.99
Motor Vehicle Operation.....		1,614.04
Repairs and Alterations.....		24.65
General Expense.....		57.85
Workmen's Compensation.....		156.00
Insurance and Bonding.....		1,776.98
Equipment.....		665.28
Motor Vehicle Purchase.....	\$.....	\$ 1,216.88
TOTAL.....		\$ 24,461.30
Cliffs of Neuse State Park:		
Salaries and Wages.....	\$.....	\$ 2,105.00
Wages—Seasonal Employees.....		148.32
Labor.....		647.00
Supplies and Materials.....		710.64
Postage, Tel Telegs and Express.....		9.30
Motor Vehicle Operation.....		355.11



## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VIII. STATE FORESTS AND PARKS—Continued:		
DISBURSEMENT—Continued:		
Cliffs of Neuse State Park—Continued:		
Lights and Power.....	\$.....	\$ 67.98
Repairs and Alterations.....	.....	447.86
Equipment.....	.....	358.34
Motor Vehicle Purchase .....	.....	1,025.00
TOTAL.....	\$.....	\$ 5,874.55
Crabtree Creek State Park:		
Salaries and Wages.....	\$.....	\$ 4,414.32
Wages-Seasonal Employees.....	.....	263.50
Labor.....	.....	1,497.70
Supplies and Materials.....	.....	1,189.07
Postage, Tel Telegs and Express.....	.....	189.84
Travel Expense.....	.....	15.73
Motor Vehicle Operation .....	.....	1,289.66
Lights and Power.....	.....	342.74
Repairs and Alterations.....	.....	2,098.79
Equipment.....	.....	594.11
Motor Vehicle Purchase .....	.....	1,392.50
TOTAL.....	\$.....	\$ 13,287.96
Fort Macon State Park:		
Salaries and Wages.....	\$.....	\$ 2,615.50
Wages-Seasonal Employees.....	.....	113.22
Labor.....	.....	744.75
Supplies and Materials.....	.....	354.73
Postage, Tel Telegs and Express.....	.....	35.00
Motor Vehicle Operation .....	.....	618.81
Repairs and Alterations.....	.....	623.53
General Expense.....	.....	2.00
Equipment.....	.....	309.41
Motor Vehicle Purchase .....	.....	910.59
Restoration Fort Macon State Park.....	.....	10,607.33
TOTAL.....	\$.....	\$ 16,934.87
Hanging Rock State Park:		
Salaries and Wages.....	\$.....	\$ 3,300.00
Wages-Seasonal Employees.....	.....	2,498.43
Labor.....	.....	1,197.75
Supplies and Materials.....	.....	1,148.81
Postage, Tel Telegs and Express.....	.....	84.36
Travel Expense.....	.....	14.27
Motor Vehicle Operation .....	.....	1,008.72
Repairs and Alterations.....	.....	1,484.47
General Expense.....	.....	901.51
Stores for Resale.....	.....	2,650.46
Equipment.....	.....	579.99
Motor Vehicle Purchase .....	.....	850.87
Lights and Power.....	.....	70.40
TOTAL.....	\$.....	\$ 15,790.04

## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VIII. STATE FORESTS AND PARKS—Continued:		
DISBURSEMENTS—Continued:		
Jones Lake Area and Singeltary Camps:		
Salaries and Wages.....	\$.....	\$ 2,700.00
Wages-Seasonal Employees.....		1,493.17
Labor.....		1,498.50
Supplies and Materials.....		1,346.24
Postage, Tel Telegs and Express.....		49.76
Travel Expense.....		5.61
Motor Vehicle Operation.....		680.09
Lights and Power.....		42.23
Repairs and Alterations.....		2,246.78
General Expense.....		229.99
Equipment.....		546.91
Motor Vehicle Purchase.....		891.93
TOTAL.....	\$.....	\$ 11,731.21
Morrow Mountain State Park:		
Salaries and Wages.....	\$.....	\$ 4,603.20
Wages-Seasonal Employees.....		2,550.85
Labor.....		1,098.75
Supplies and Materials.....		1,198.30
Postage, Tel Telegs and Express.....		79.86
Motor Vehicle Operation.....		1,041.34
Lights and Power.....		482.38
Repairs and Alterations.....		1,848.03
General Expense.....		310.99
Stores for Resale.....		1,773.07
Equipment.....		637.76
TOTAL.....	\$.....	\$ 15,624.53
Mount Mitchell State Park:		
Salaries and Wages.....	\$.....	\$ 3,066.00
Wages-Seasonal Employees.....		33.30
Labor.....		446.05
Supplies and Materials.....		700.07
Postage, Tel Telegs and Express.....		10.00
Repairs and Alterations.....		846.98
Stores for Resale.....		599.51
Equipment.....		328.73
Additions and Betterments.....		50,000.00
TOTAL.....	\$.....	\$ 56,030.64
Pettigrew State Park:		
Salaries and Wages.....	\$.....	\$ 2,310.00
Wages-Seasonal Employees.....		56.61
Labor.....		424.76
Supplies and Materials.....		724.09
Postage, Tel Telegs and Express.....		10.00
Motor Vehicle Operation.....		80.69
Lights and Power.....		49.38
Repairs and Alterations.....		974.27
Equipment.....		287.08
TOTAL.....	\$.....	\$ 4,916.88



## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VIII. STATE FORESTS AND PARKS—Continued:		
DISBURSEMENTS—Continued:		
Town Creek Indian Mound:		
Supplies and Materials.....	\$.....	\$ 147.00
Postage, Tel Telegs and Express.....		5.00
Repairs and Alterations.....		88.20
Equipment.....		143.99
TOTAL.....	\$.....	\$ 384.19
State Lakes (White and Waccamaw):		
Wages-Seasonal Employees.....	\$.....	\$ 835.52
Labor.....		1,082.80
Supplies and Materials.....		1,019.84
Postage, Tel Telegs and Express.....		5.00
Motor Vehicle Operation.....		149.33
Equipment.....		1,290.76
TOTAL.....	\$.....	\$ 4,383.25
Hiwassee State Park:		
Salaries and Wages.....		\$ 4,520.78
Wages-Seasonal Employees.....		200.00
Labor.....		781.10
Supplies and Materials.....		703.32
Postage, Tel Telegs and Express.....		65.00
Travel Expense.....		22.70
Motor Vehicle Operation.....		368.86
Repairs and Alterations.....		1,120.05
Hiwassee State Park—Continued:		
Equipment.....	\$.....	\$ 637.64
Motor Vehicle Purchase.....		550.00
Lights and Power.....		333.39
TOTAL.....	\$.....	\$ 9,302.84
Parks Administration and Parks Combined:		
Salaries and Wages.....	\$ 29,288.58	\$.....
Salaries and Wages-Seasonal.....	5,525.06	.....
Labor.....	4,022.89	.....
Supplies and Materials.....	4,059.90	.....
Postage, Tel Telegs and Express.....	598.98	.....
Travel Expense.....	892.26	.....
Printing and Binding.....	227.70	.....
Motor Vehicle Operation.....	4,798.87	.....
Lights and Power.....	1,125.31	.....
Repairs and Alterations.....	4,299.48	.....
General Expense.....	1,435.40	.....
Insurance and Bonding.....	1,800.00	.....
Equipment.....	1,973.53	.....
Motor Vehicle Purchase.....	583.54	.....
Stores for Resale.....	3,455.26	.....
Workmen's Compensation.....	156.00	.....
Buildings and Improvements-Neuse Cliffs.....	— 2,700.00	.....

## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
VIII. STATE FORESTS AND PARKS—Continued:		
DISBURSEMENTS—Continued:		
Parks Administration and Parks Combined—Continued:		
Equipment- Morrow Mountain Park .....	— 19.69	-----
Equipment-Pettigrew Park .....	— 64.12	-----
Restoration Fort Macon .....	11,450.31	-----
TOTAL STATE PARKS .....	\$ 72,909.26	\$ 178,722.26
Less Receipts:		
Permits, State Lakes .....	\$ 538.05	\$ 2,763.21
Park Concessions .....	27,510.29	27,212.07
Transferred from Proceeding Year .....		10,608.00
Payment War Department-Restoration Fort Macon .....	11,450.00	-----
TOTAL .....	\$ 39,498.34	\$ 40,583.28
APPROPRIATION .....	\$ 33,410.92	\$ 138,138.98
X. FOREST MANAGEMENT:		
DISBURSEMENTS:		
Salaries and Wages .....	\$ 11,510.00	\$ 14,387.77
Supplies and Materials .....	174.25	905.09
Postage, Tel. Telegs and Express .....	123.23	222.67
Travel Expense .....	973.87	1,502.43
Printing and Binding .....	97.59	298.69
Motor Vehicle Operation .....	944.35	1,931.98
Repairs and Alterations .....	5.74	49.49
Motor Vehicles Exchange .....		4,576.86
Equipment .....	5.69	948.75
Travel Expense-T. V. A. .....	562.86	-----
Motor Vehicle Operation-T. V. A. .....	397.35	-----
Emergency Salary .....	370.00	-----
Emergency Bonus .....	1,026.00	-----
TOTAL .....	\$ 16,190.93	\$ 24,823.73
Less Receipts:		
Federal Cooperation-T. V. A. .....	1,000.00	-----
APPROPRIATION .....	\$ 15,190.93	\$ 24,823.73
XI. NURSERIES:		
DISBURSEMENTS:		
Salaries and Wages .....	\$ 5,940.00	\$ 8,610.00
Labor .....	16,938.86	22,262.11
Supplies and Materials .....	2,168.15	4,871.90
Postage, Tel Telegs and Express .....	607.03	1,023.07
Travel Expense .....	82.78	182.06
Printing and Binding .....	15.23	86.67
Motor Vehicle Operation .....	994.43	1,974.78
Lights and Power .....	124.08	127.44
Repairs and Alterations .....	144.89	414.43
General Expense .....		9.23
Insurance and Bonding .....	100.00	3.00
Equipment .....	972.72	1,629.59



## APPROPRIATIONS DIVISIONS—Continued

	1946-47	1947-48
<b>XI. NURSERIES—Continued:</b>		
DISBURSEMENTS—Continued:		
Buildings and Improvements.....		6,497.95
Emergency Salary.....	360.00	
Emergency Bonus.....	648.00	
TOTAL.....	\$ 29,096.17	\$ 47,673.77
Less Receipts:		
Federal Cooperation.....	\$ 2,758.00	\$ 2,741.48
Sale of Seedlings.....	7,611.97	13,180.59
TOTAL.....	\$ 10,369.97	\$ 15,922.07
APPROPRIATION.....	\$ 18,726.20	\$ 31,751.70
<b>XII. STATE FORESTS:</b>		
DISBURSEMENTS:		
Salaries and Wages.....	\$ 5,530.18	\$ 7,191.04
Labor.....		2,416.95
Supplies and Materials.....	170.84	527.48
Postage, Tel Telegs and Express.....	148.30	184.04
Travel Expense.....	38.79	86.50
Printing and Binding.....	47.30	62.65
Motor Vehicle Operation.....	3,162.18	2,876.72
Lights and Power.....	274.78	343.44
Repairs and Alterations.....	19.13	800.98
Timber Marketing.....	10,959.12	11,368.95
Insurance and Bonding.....	100.00	328.24
Equipment.....	4,927.03	4,000.51
Motor Vehicle Exchange.....		916.40
Emergency Salary.....	344.68	
Emergency Bonus.....	638.55	
TOTAL.....	\$ 26,360.88	\$ 31,103.90
Less Receipts—State Forests:		
Bladen Lakes State Forest.....	\$ 32,160.63	\$ 31,413.20
APPROPRIATION.....	\$ +5,799.75	\$ +309.30
<b>MISCELLANEOUS ACCOUNTS:</b>		
DISBURSEMENTS.		
Repairs and Alterations—Section Base.....	\$	\$ 11,000.00
Emergency Salary.....	4,800.25	
(Forest Fire, Management, Nurseries and Forests.....	15,539.68)	
Emergency Bonus.....	11,039.04	
(Forest Fire, Management, Nurseries and Forests.....	26,744.01)	
Purchase Morehead City, Section Naval Base.....	66,125.00	
TOTAL.....	\$ 81,964.29	\$ 11,000.00
TOTAL DISBURSEMENTS.....	\$ 981,871.09	\$1,394,983.09
LESS TOTAL RECEIPTS.....	438,451.96	514,476.24
TOTAL DISBURSEMENTS FROM APPROPRIATION.....	\$ 543,419.13	\$ 880,506.85

COMMERCIAL FISHERIES  
SHELLFISH DIVISION  
STATEMENTS OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
APPROPRIATION:.....		\$ 100,000.00
LESS: DISBURSEMENTS		
Salaries and Wages.....		\$ 880.00
Postage, Tel Telegs and Express.....		3.15
Travel Expense.....		399.37
Motor Vehicles Operation.....		301.90
Oyster Planting.....		24,671.72
Coop. University of North Carolina-Oyster Survey.....		15,000.00
Motor Vehicle Purchase.....		1,178.84
TOTAL.....	\$ .....	\$ 42,434.98
BALANCE TRANSFERRED TO YEAR 1948-49.....	\$ .....	\$ 57,565.02

COMMISSION TO STUDY CERTAIN SHRIMPING GROUNDS  
STATEMENT OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
APPROPRIATION:.....	\$ .....	\$ 50,000.00
LESS: DISBURSEMENTS		
Cooperation University of North Carolina, Fisheries Research Laboratory Shrimp Survey.....	\$ .....	\$ 50,000.00
BALANCE.....		None

CONSTRUCTION OF SMALLMOUTH BASS HATCHERY  
STATEMENTS OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
Balance Transferred from Preceding Year.....	\$ 84,867.06	\$ .....
LESS: DISBURSEMENTS		
Salaries and Wages.....	\$ 24,941.69	\$ .....
Supplies and Materials.....	15,001.38	.....
Postage, Tel Telegs and Express.....	56.02	.....
Travel Expense.....	59.81	.....
Motor Vehicle Operation.....	5,731.24	.....
Rental and Equipment.....	543.15	.....
Equipment.....	9,916.32	.....
Emergency Salary.....	205.48	.....
Emergency Bonus.....	528.00	.....
TOTAL.....	\$ 56,983.09	\$ .....
Unexpended Balance Appropriation Funds, as of June 30, 1947, Transferred to the Wildlife Resources Commission.....	\$ 27,883.97	\$ .....

DEPARTMENT OF CONSERVATION AND DEVELOPMENT  
AND THE UNIVERSITY OF NORTH CAROLINA  
FISHERIES RESEARCH LABORATORY  
STATEMENTS OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
RECEIPTS:		
Knapp Foundation.....	\$.....	\$ 55,000.00
LESS: DISBURSEMENTS		
Shrimp Survey:		
Travel Expense.....	\$.....	\$ 57.59
Per Diem Commission.....		317.40
TOTAL.....	\$.....	\$ 374.99
BALANCE TRANSFERRED TO UNIVERSITY OF NORTH CAROLINA, JAN. 1, 1948.....	\$.....	\$ 54,625.01

CAPE HATTERAS SEASHORE COMMISSION  
STATEMENT OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
BALANCE TRANSFERRED FROM PRECEDING YEAR.....	\$ 68,281.00	\$ 68,281.00
LESS: DISBURSEMENTS		
Legal Expense.....	\$.....	\$ 48.45
BALANCE TRANSFERRED TO SUCCEEDING YEAR.....	\$ 68,281.00	\$ 68,232.55

DEPARTMENT OF CONSERVATION AND DEVELOPMENT  
APPROPRIATIONS DIVISIONS  
PERMANENT IMPROVEMENT FUNDS  
STATEMENTS OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
APPROPRIATION:		
State Parks.....	\$.....	\$ 500,000.00
DISBURSEMENTS:		None
BALANCE TRANSFERRED TO FISCAL YEAR 1948-49.....	\$.....	\$ 500,000.00

PURCHASE OF TRYON'S PALACE LAND  
STATEMENTS OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
APPROPRIATION.....	\$ 150,000.00	\$.....
BALANCE TRANSFERRED FROM PRECEDING YEAR.....		\$ 150,000.00
DISBURSEMENTS.....	None	None
BALANCE TRANSFERRED TO SUCCEEDING YEAR.....	\$ 150,000.00	\$ 150,000.00



DIVISION OF GAME AND INLAND FISHERIES  
SPECIAL FUNDS  
STATEMENTS OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
<b>INLAND FISHERIES:</b>		
<b>DISBURSEMENTS:</b>		
<b>Administration:</b>		
Salaries and Wages.....	\$ 9,487.00	\$.....
Supplies and Materials.....	1,153.26	.....
Postage Tel Telegs Express.....	260.70	.....
Travel Expense.....	1,092.14	.....
Printing and Binding.....	4,027.58	.....
Motor Vehicle Operation.....	1,536.79	.....
General Expense.....	130.80	.....
Rents.....	100.00	.....
Legal Notices.....	66.86	.....
Insurance and Bonding.....	231.72	.....
Equipment.....	425.65	.....
Motor Vehicles Exchange.....	1,352.70	.....
<b>TOTAL.....</b>	<b>\$ 19,865.20</b>	<b>\$.....</b>
<b>RESEARCH-INVESTIGATION:</b>		
Salaries and Wages.....	\$ 1,482.03	\$.....
Supplies and Materials.....	89.31	.....
Travel Expense.....	25.44	.....
Motor Vehicle Operation.....	112.01	.....
Equipment.....	263.00	.....
Motor Vehicle Exchange.....	1,762.89	.....
<b>TOTAL.....</b>	<b>\$ 3,734.68</b>	<b>\$.....</b>
<b>MORRISON HATCHERY:</b>		
Salaries and Wages.....	\$ 5,058.75	\$.....
Supplies and Materials.....	4,942.07	.....
Postage Tel Teleg Express.....	74.38	.....
Travel Expense.....	47.69	.....
Motor Vehicle Operation.....	896.19	.....
Lights and Power.....	106.71	.....
Repairs and Alterations.....	4,760.70	.....
Equipment.....	1,141.07	.....
Building and Improvements.....	1,940.91	.....
Rents.....	50.00	.....
<b>TOTAL.....</b>	<b>\$ 19,018.47</b>	<b>\$.....</b>
<b>MURPHY HATCHERY:</b>		
Salaries and Wages.....	\$ 3,944.00	\$.....
Supplies and Materials.....	5,125.52	.....
Postage, Tel Teleg Express.....	117.95	.....
Travel Expense.....	77.90	.....
Motor Vehicle Operation.....	975.39	.....
Lights and Power.....	92.70	.....
Repairs and Alterations.....	538.30	.....
Equipment.....	1,307.16	.....
Motor Vehicle Exchange.....	1,305.16	.....
<b>TOTAL.....</b>	<b>\$ 13,484.08</b>	<b>\$.....</b>

## DIVISION OF GAME AND INLAND FISHERIES—Continued

	1946-47	1947-48
INLAND FISHERIES—Continued:		
DISBURSEMENTS—Continued:		
STEDMAN HATCHERY:		
Salaries and Wages.....	\$ 3,767.63	\$.....
Supplies and Materials.....	842.36	.....
Postage Tel Teleg Express.....	110.43	.....
Travel Expense.....	13.67	.....
Motor Vehicle Operation.....	744.40	.....
Lights and Power.....	566.21	.....
Repairs and Alterations.....	1,402.28	.....
Equipment.....	2,412.76	.....
Buildings and Improvements.....	54.83	.....
Motor Vehicle Exchange.....	1,553.82	.....
TOTAL.....	\$ 11,468.39	\$.....
ROARING GAP HATCHERY:		
Salaries and Wages.....	\$ 3,239.50	\$.....
Supplies and Materials.....	2,751.08	.....
Postage Tel Teleg Express.....	43.38	.....
Travel Expense.....	25.61	.....
Motor Vehicle Operation.....	412.60	.....
Lights and Power.....	94.61	.....
Repairs and Alterations.....	1,140.20	.....
Equipment.....	416.00	.....
TOTAL.....	\$ 8,122.98	\$.....
MARMON HATCHERY:		
Salaries and Wages.....	\$ 3,191.75	\$.....
Supplies and Materials.....	5,725.08	.....
Postage Tel Teleg Express.....	48.28	.....
Travel Expense.....	30.41	.....
Motor Vehicle Operation.....	397.64	.....
Lights and Power.....	72.77	.....
Repairs and Alterations.....	78.18	.....
Rents.....	250.00	.....
Equipment.....	518.09	.....
TOTAL.....	\$ 10,312.20	\$.....
TABLE ROCK HATCHERY:		
Equipment.....	\$ 144.50	\$.....
TOTAL.....	\$ 144.50	\$.....

## DIVISION OF GAME AND INLAND FISHERIES—Continued

	1946-47	1947-48
INLAND FISHERIES—Continued:		
DISBURSEMENTS—Continued:		
MISCELLANEOUS ACCOUNTS:		
Protector's Salaries.....	\$ 63,000.00	\$ .....
Contribution Retirement System.....	3,515.74	.....
Emergency Salary.....	7,040.96	.....
Emergency Bonus.....	11,735.58	.....
Workmen's Compensation.....	1,790.40	.....
Salaries and Wages-Management Areas.....	16,696.00	.....
Maintenance-Weld. Hatchery.....	57.65	.....
Stream Pollution Study.....	900.00	.....
Transfer to Special Funds-Purchase, Lease and Development of lands and Waters.....	12,960.00	.....
TOTAL.....	\$ 117,696.33	\$ .....
Total Disbursements-Inland Fisheries.....	\$ 203,846.83	.....
Less Receipts:		
Sale of Angler's License.....	\$ 187,233.25	\$ .....
Transferred from Preceding Year.....	80,635.87	.....
Sale of Surplus Fish.....	3,596.25	.....
Miscellaneous Receipts.....	179.65	.....
TOTAL RECEIPTS.....	\$ 271,645.02	\$ .....
Credit Balance Inland Fisheries.....	\$ 67,798.19	.....
GAME DIVISION:		
DISBURSEMENTS:		
Administration:		
Salary-Commissioner.....	\$ 4,999.92	\$ .....
Salaries-Staff.....	4,876.50	.....
Supplies and Materials.....	67.15	.....
Postage Tel Teleg Express.....	499.73	.....
Travel Expense.....	1,043.69	.....
Printing and Binding.....	3,972.35	.....
Motor Vehicle Operation.....	429.39	.....
Repairs and Alterations.....	53.49	.....
General Expense.....	159.18	.....
Subscription and Dues.....	62.50	.....
Equipment.....	147.05	.....
Rents.....	420.00	.....
Motor Vehicle Exchange.....	905.20	.....
TOTAL.....	\$ 17,636.15	\$ .....
FISCAL AND PROPERTY:		
Salaries and Wages.....	\$ 8,210.43	.....
Supplies and Materials.....	197.31	.....
Postage Tel Teleg Express.....	100.00	.....
Travel Expense.....	509.65	.....
Motor Vehicle Operation.....	835.56	.....
Repairs and Alterations.....	43.15	.....
Equipment.....	230.52	.....
Motor Vehicles Exchange.....	1,068.05	.....
TOTAL.....	\$ 11,194.67	.....



## DIVISION OF GAME AND INLAND FISHERIES—Continued

	1946-47	1947-48
GAME DIVISION—Continued:		
DISBURSEMENTS—Continued:		
ENFORCEMENT:		
Salary-Chief.....	\$ 4,070.00	\$ .....
Salaries and Wages-Staff.....	117,581.83	.....
Uniforms, Arms and Supplies.....	7,362.42	.....
Supplies and Materials.....	486.08	.....
Postage Tel Teleg Express.....	1,800.00	.....
Travel Expense.....	56,945.68	.....
Motor Vehicle Operation.....	6,778.62	.....
Repairs and Alterations.....	33.25	.....
General Expense.....	175.43	.....
Legal Costs.....	164.64	.....
Insurance and Bonding.....	1,013.79	.....
Equipment.....	7,078.33	.....
Motor Vehicle Exchange.....	1,326.06	.....
TOTAL.....	\$ 204,816.13	.....
GAME MANAGEMENT:		
ADMINISTRATION:		
Salaries and Wages-Staff.....	\$ 238.50	\$ .....
Supplies and Materials.....	13.48	.....
Postage Tel Teleg Express.....	29.35	.....
Travel Expense.....	14.60	.....
Motor Vehicle Operation.....	20.22	.....
Repairs and Alterations.....	7.30	.....
Equipment.....	150.55	.....
Motor Vehicle Exchange.....	—22.50	.....
TOTAL.....	\$ 451.80	.....
FARM GAME PROGRAM:		
Salaries and Wages.....	\$ 1,256.80	\$ .....
Supplies and Materials.....	63.91	.....
Postage Tel Teleg Express.....	36.67	.....
Travel Expense.....	126.50	.....
Motor Vehicle Operation.....	140.94	.....
Repairs and Alterations.....	6.75	.....
Equipment.....	45.00	.....
Motor Vehicle Exchange.....	1,324.92	.....
TOTAL.....	\$ 3,001.49	\$ .....
GAME FARMS:		
Supplies and Materials.....	—25.80	.....
Repairs and Alterations.....	213.94	.....
Equipment.....	125.48	.....
TOTAL.....	\$ 313.62	\$ .....
MANAGEMENT AREAS AND REFUGES:		
Salaries and Wages-Staff.....	\$ 15,503.94	\$ .....
Uniforms, Arms and Supplies.....	1,315.71	.....
Supplies and Materials.....	982.49	.....
Postage Tel Teleg Express.....	414.50	.....
Travel Expense.....	1,035.09	.....

## DIVISION OF GAME AND INLAND FISHERIES—Continued

	1946-47	1947-48
GAME DIVISION—Continued:		
DISBURSMENTS—Continued:		
MANAGEMENT AREAS AND REFUGES—Continued:		
Printing and Binding.....	\$ 178.64	\$ .....
Motor Vehicle Operation.....	5,426.32	.....
Lights and Power.....	169.44	.....
Repairs.....	181.45	.....
Additions and Betterments.....	940.69	.....
Rents.....	20.00	.....
Equipment.....	1,004.73	.....
Motor Vehicle Exchange.....	1,200.36	.....
TOTAL.....	\$ 28,373.36	\$ .....
EDUCATION AND TRAINING:		
Salaries and Wages.....	\$ 5,888.90	\$ .....
Supplies and Materials.....	632.87	.....
Postage Tel Teleg Express.....	456.28	.....
Travel Expense.....	333.48	.....
Printing and Binding.....	2,067.84	.....
Motor Vehicle Operation.....	329.54	.....
Repairs and Alterations.....	5.25	.....
General Expense.....	54.75	.....
Equipment.....	21.42	.....
Motor Vehicle Exchange.....	—26.82	.....
TOTAL.....	\$ 9,763.51	\$ .....
PITTMAN-ROBERTSON PROJECTS:		
DISBURSMENTS:		
Coordinating Project:		
Salaries and Wages.....	\$ 5,090.00	\$ .....
Supplies and Materials.....	49.54	.....
Postage Tel Teleg Express.....	73.30	.....
Travel Expense.....	352.85	.....
Motor Vehicle Operation.....	567.93	.....
Equipment.....	179.45	.....
Emergency Salary.....	240.00	.....
Emergency Bonus.....	486.00	.....
TOTAL.....	\$ 7,039.07	\$ .....
S. C. S. DISTRICT COOPERATIVE FARM AND GAME PROJECT:		
Salaries and Wages.....	\$ 2,150.00	\$ .....
Supplies and Materials.....	3,163.42	.....
Postage Tel Teleg Express.....	29.76	.....
Travel Expense.....	447.60	.....
Printing and Binding.....	1.60	.....
Motor Vehicle Operation.....	619.85	.....
Equipment.....	1,352.02	.....
Emergency Salary.....	120.00	.....
Emergency Bonus.....	246.00	.....
TOTAL.....	\$ 8,130.25	\$ .....

## DIVISION OF GAME AND INLAND FISHERIES—Continued

	1946-47	1947-48
GAME DIVISION—Continued:		
DISBURSEMENTS—Continued:		
STUDY OF DEER MANAGEMENT AT HOLLY SHELTER:		
Salaries and Wages.....	\$ 1,853.36	\$ .....
Supplies and Materials.....	113.70	.....
Postage Tel Teleg Express.....	55.44	.....
Travel Expense.....	270.52	.....
Printing and Binding.....	118.00	.....
Motor Vehicle Operation.....	637.38	.....
General Expense.....	231.09	.....
Equipment.....	746.50	.....
Emergency Salary.....	92.67	.....
Emergency Bonus.....	258.00	.....
TOTAL.....	\$ 4,376.66	\$ .....
WILDLIFE RESOURCES INVENTORY:		
Salaries and Wages.....	\$ 7,030.72	\$ .....
Supplies and Materials.....	214.47	.....
Postage Tel Teleg Express.....	74.64	.....
Travel Expense.....	683.65	.....
Printing and Binding.....	7.17	.....
Motor Vehicle Operation.....	1,663.19	.....
Equipment.....	1,407.06	.....
Emergency Salary.....	435.48	.....
Emergency Bonus.....	890.39	.....
TOTAL.....	\$ 12,406.77	\$ .....
STATE WIDE DEER TRAPPING AND RESTOCKING PROJECT:		
Salaries and Wages.....	\$ 7,074.00	\$ .....
Supplies and Materials.....	1,498.53	.....
Postage Tel Teleg Express.....	29.17	.....
Travel Expense.....	303.03	.....
Motor Vehicle Operation.....	2,186.01	.....
Equipment.....	3,420.16	.....
Purchase of 100 Deer.....	1,530.00	.....
Emergency Salary.....	240.00	.....
Emergency Bonus.....	480.00	.....
TOTAL.....	\$ 16,760.90	\$ .....
FUR RESOURCES INVESTIGATION AND SURVEY:		
Salaries and Wages.....	\$ 1,289.22	\$ .....
Supplies and Materials.....	139.62	.....
Postage Tel Teleg Express.....	12.95	.....
Travel Expense.....	323.80	.....
Printing and Binding.....	35.32	.....
Motor Vehicle Operation.....	340.06	.....
Equipment.....	273.40	.....
General Expense.....	484.73	.....
Emergency Salary.....	42.67	.....
TOTAL.....	\$ 2,941.77	\$ .....



## DIVISION OF GAME AND INLAND FISHERIES—Continued

	1946-47	1947-48
GAME DIVISION—Continued:		
DISBURSEMENTS—Continued:		
WILD TURKEY RESTORATION:		
Salaries and Wages.....	\$ 1,909.15	\$ .....
Supplies and Materials.....	2.68	.....
Postage Tel Teleg Express.....	4.25	.....
Travel Expense.....	389.75	.....
Motor Vehicle Operation.....	307.84	.....
Equipment.....	941.99	.....
Emergency Salary.....	70.00	.....
Emergency Bonus.....	236.25	.....
TOTAL.....	\$ 3,861.91	\$ .....
Total Pittman-Robertson Projects.....	\$ 55,517.33	\$ .....
MISCELLANEOUS ACCOUNTS:		
Workmen's Compensation.....	\$ 743.33	\$ .....
Contribution Retirement System.....	6,263.58	.....
Emergency Salary.....	10,284.00	.....
(Pittman-Robertson Project.....	1,240.82)	.....
Emergency Bonus.....	18,535.64	.....
(Pittman-Robertson Project.....	2,596.64)	.....
Transfer to Special-Purchase, Lease and Development of Lands and Waters.....	58,071.50	.....
TOTAL.....	\$ 93,898.05	\$ .....
TOTAL DISBURSEMENTS.....	\$ 424,966.11	\$ .....
Less Receipts:		
Sale of Hunting Licenses.....	\$ 478,810.27	\$ .....
Transferred from Preceding Year.....	114,781.72	.....
Federal Cooperation.....	34,313.18	.....
Receipts-Management Areas.....	1,772.18	.....
Miscellaneous Receipts.....	826.00	.....
Sale of Pittman-Robertson Equipment.....	4,291.44	.....
TOTAL RECEIPTS-GAME.....	\$ 634,794.79	\$ .....
Credit Balance Game Division.....	\$ 209,828.68	\$ .....
SUMMARY GAME AND FISH FUNDS:		
Total Credit Balance from Preceding Year.....	\$ 195,417.59	\$ .....
Total Net Receipts.....	\$ 711,022.22	\$ .....
TOTAL REVENUE.....	\$ 906,439.81	\$ .....
Less Total Net Disbursements.....	\$ 557,781.44	\$ .....
TOTAL.....	\$ 348,658.37	\$ .....
Less: Transfer to Special Funds: Code 2902, Purchase, Lease and Development of Lands and Waters.....	\$ 71,031.50	\$ .....
NET UNEXPENDED CREDIT BALANCE: DIVISION OF GAME AND INLAND FISHERIES AS OF JUNE 30, 1947, TRANSFERRED TO THE WILDLIFE RESOURCES COMMISSION.....	\$ 277,626.87	\$ .....

DIVISION OF GAME AND INLAND FISHERIES  
PURCHASE, LEASE, AND DEVELOPMENTS OF LANDS AND WATERS  
STATEMENT OF RECEIPTS AND DISBURSEMENTS  
BIENNIUM 1946-48

	1946-47	1947-48
INLAND FISHERIES:		
DISBURSEMENTS:		
Salaries and Wages.....	\$ 248.20	\$ .....
Supplies and Materials.....	829.04	.....
Rental Equipment.....	1,035.50	.....
Operation Equipment.....	32.45	.....
Repairs and Alterations.....	735.50	.....
TOTAL.....	\$ 2,880.69	.....
Less Receipts:		
Transferred from Preceding Year.....	\$ 8,217.50	\$ .....
Receipts on Sale Fishing Licenses (\$.50 Each).....	12,960.00	.....
	21,177.50	.....
CREDIT BALANCE-INLAND FISHERIES.....	\$ 18,296.81	\$ .....
GAME:		
Receipts:		
Transferred from Preceding Year.....	\$ 40,699.50	\$ .....
Receipts on Sale of Hunting Licenses (.50 each).....	58,071.50	.....
TOTAL.....	\$ 98,771.00	.....
CREDIT BALANCE-GAME.....	\$ 98,771.00	\$ .....
TOTAL REVENUE.....	\$ 119,948.50	\$ .....
LESS: TOTAL DISBURSEMENTS.....	\$ 2,880.69	\$ .....
NET UNEXPENDED CREDIT BALANCE AS OF JUNE 30, 1947, TRANS- FERRED TO THE WILDLIFE RESOURCES COMMISSION.....	\$ 117,067.81	\$ .....

## **DIVISION OF COMMERCIAL FISHERIES**

### **INTRODUCTION**

It is true that North Carolina has always been richly blessed with a great variety of marine life widely distributed; however, the Department would have all those interested in commercial fishing to keep in mind the all important fact that our fishery resources are definitely not inexhaustable.

It is not enough to know that the present economy of eastern North Carolina is greatly affected by this industry; the problem makes it imperative that our State effect long range plans for its protection. It was in recognition of the vital importance of this matter that the Legislaure of 1947 appropriated funds to establish as an additional safe-guard a research agency to study commercial fishing, more particularly shrimping, crabbing and oystering. This agency, Institute of Fisheries Research of the University of North Carolina is now in operation and is quartered in offices here at the Section Base so we can work together to the greatest advantage.

### **FOOD FISH**

The production of food fish for this biennium has been less than any previous biennium in the history of the Department, but the increase in price has made up for a good part of the loss in revenue to the fishermen. Unfavorable weather was one of the main causes of the greatly reduced production of fish. Too, there has been less long haul fishing than in the past six years. For some unknown reason we have not had the large croakers we used to have in the summer. This was one of the main activities on the inside; also the beach crews fishing for mullet and spots in the fall did not do anything compared to other years on account of the rough weather. The fishermen marketed 60,152,500 pounds of fish this biennium at a value of \$7,107,600, as against 90,717,000 pounds the previous biennium at a value of \$7,692,050.

### **SHRIMP**

The production of shrimp for this biennium was 9,048,533 pounds, with heads on, at a value of \$3,166,987. This was 20,055 pounds more than was produced the previous biennium. Most of the shrimp were caught from inland waters. It is not known why the catch of shrimp on the outside fell off so badly these last two years. Of a total of \$10,859,037. derived from production of edible fin fish this biennium \$3,166,987. was received from shrimp. About 500 boats were engaged in this work.



## MENHADEN

There were more menhaden boats fishing here this biennium than ever before (about sixty boats fished out of Beaufort Inlet, including the non-residents). More menhaden were caught during this period in the spring and summer on the inside than have been taken for a long time. The best menhaden fishing is in the fall of the year when the fish are large and fat—from the last of October to the middle of December—and there are usually plenty of fish. The catch is determined by the weather. There were 445,250,000 menhaden produced at a value of \$9,225,580 this biennium; and 32,058 tons of scrap valued at \$4,167,540 and 3,562,000 gallons of oil, valued at \$5,058,040, were marketed. There are nine factories in the State, eight in Carteret County and one in Brunswick County. These represent an investment of \$1,800,000; boats, \$3,000,000; and nets, \$175,000.

## OYSTERS

There was a decrease in the production of oysters this biennium as against that of the previous period but the increase in price helped to make up for the loss in revenue to the oystermen. The production was 567,770 bushels (4 pecks) of oysters this biennium valued at \$681,324 compared with 902,111 bushels valued at \$1,082,533 the previous period. The first year of this biennium the Legislature raised the tax on oysters from 2c to 4c with the stipulation that one-half the tax would go to planting oysters and shells. During the spring of 1947, 63,258 bushels of shells were planted and in the spring of 1948 95,919 bushels were planted, making a total planting of shells for the biennium 159,177 bushels. This past Legislature appropriated \$100,000 for the rehabilitation of the oyster industry and at the same time required the dealers to donate one-half of their shells to this Department to be planted on public grounds. By planting every year for a few years, the oyster grounds will be built up to where the oyster will be one of our main seafood industries.

## CLAMS

The production of clams was less this biennium than that of the previous period. This decrease was not due to the scarcity of clams but to the lack of the demand for them. If it was not for the Willis Bros. shucking plant there would be very little clam market. They handle by far more clams than all the rest of the dealers. The output of clams this biennium was 47,280 bushels at a value of \$94,560. as against 60,814 bushels valued at \$121,628 for the previous period.

## ESCALLOPS

Escallops were more abundant during this biennium than in like periods in twenty years. The increase in escallops was due to eel grass coming back in small spots in our water, and we are hopeful the grass will eventually come back to its former status. Production was 6,463 gallons of escallops valued at \$25,852, this biennium as against 3,211 gallons, valued at \$12,844, the previous period.

## CRABS

There was a small decrease in the output of hard crabs during this biennium but apparently this was not due to the scarcity or demand but to the fact that fewer fishermen were engaged in this activity. Production was 8,892,000 pounds of hard crabs value at \$444,600 this period as against 10,100,000 pounds value at \$404,000 the pervious period. A slight decrease in the production of soft crabs was noted these last two years. The catch was 61,706 dozen soft crabs, valued at \$123,412, as against 69,056 dozen valued at \$138,112 the previous period.

## REPORT OF DISTRICT SANITARIAN

Captain John A. Nelson  
Fisheries Commissioner  
Morehead City, N. C.

Dear Capt. Nelson:

I have the pleasure of submitting this brief report of the activities and observations of the office of Shellfish Sanitation during the biennium ending June 30, 1948.

During the biennium just concluded Mr. E. J. Willis returned to his shellfish sanitation duties from overseas service in the U. S. Army. With his return more extensive supervision of the sanitary precautions in shellfish plans has been possible. During the past twenty-four months 1,767 inspections of shellfish plants were made. Thirteen new shucking plants were built at an average cost of approximately \$3,000. Twenty-four new shellstock plants or boats were added to the certified list. Ten new crab meat processing plants were constructed and equipped at an average cost of \$3500. There were averages of 47 shucking plants, 24 crab meat plants and 76 shellstock dealers certified during the past biennium.

Not many years ago the shellfish plants were few in number but large in size. As roads then were poor these plants were located mainly near railroads. Today, with the marked improvement in the hard-surfaced highway system and with rural electrification, the trend is toward smaller plants located at scattered sites as near the shellfish growing area as possible. This trend has diminished the production of the larger plants but has provided welcome employment for many residents of small coastal communities. It is believed that with the present supply of and demand for oysters the number of plants has reached the saturation point.

An increase in North Carolina demand for North Carolina seafoods could greatly improve the status of shellfish production. Most of the shellfish produced in this State is consumed within a hundred-mile-wide belt extending along the Carolina coast, or shipped to northern repackers. There exists a definite need for development of consumer demand for North Carolina shellfish by this State's Piedmont and Western communities. North Carolina shellfish plants have been inspected and approved by representatives of the U. S. Public Health Service and rate with the best in the Nation. An educational program to acquaint the consuming public



with the palatableness and sanitary excellence of North Carolina shellfish should be inaugurated. The preference and demand for a good product could in turn provide the initiative and capital for continuous expansion and improvement of North Carolina's seafood industry.

In this State fin fish are rarely if ever eaten without first having been thoroughly cooked. This cooking should render fish almost entirely free of harmful bacteria. For this reason, only a half hearted consumer demand has largely determined the freshness of fish sold in retail markets. Today those merchants who have learned that attractive display of clean fresh fish in attractive surroundings has greatly expanded their retail sales, have developed a gradual trend away from back-alley "markets" and fish carts. Yet there are many nauseating nuisances created by unregulated fish markets. The average wholesale house has the same stench and the same ramshackle appearance as its twin of a generation ago. Many complaints of nuisances as the result of careless waste disposal have been filed with this office during the last biennium. There seems to be an urgent need for at least a moderate form of sanitary regulations governing the handling and vending of fin fish. It is believed that the consumer, the retailer, and the wholesaler of fin fish will all benefit as a result.

Upon moving to new quarters in the former Naval Section Base we were able to improve and expand the shellfish bacteriological laboratory. Already re-surveys of several shellfish growing areas closed for pollution reasons are underway. We are hopeful of obtaining a full time laboratory technician so that a continuous program of the bacteriological phase of shellfish sanitation can be followed. To date laboratory examinations have been restricted to shellfish waters, but additional personnel would enable us to examine oysters, clams, crab meat and related products as recommended by the U. S. Public Health Service.

I welcome this opportunity of expressing my sincere appreciation of the gracious cooperation you and the members of your staff have given me and other representatives of the N. C. State Board of Health in the discharge of our duties.

Sincerely yours,

N. McKEITHAN CALDWELL,

In Charge of Shellfish Sanitation

### MISCELLANEOUS

Since the last report we have sold the Oyster Demonstration Farm on North River and abandoned the diamond-back terrapin project on Pivers Island. The Naval Section Base at Morehead City has been acquired, and the Administration building has been converted into offices and Board room. Here there is a splendid lay-out for the Fisheries Department—made complete by having one of the best piers in the State.

### PATROL BOATS

Eight patrol boats located at the following points: The Cape Fear, Hatteras and Atlantic stationed at Morehead City; Croatan and Pungo, at Manteo; Ocracoke, at Swan Quarter; Albemarle, at Edenton; and Neuse, at New Bern.



STATEMENT OF RECEIPTS AND DISBURSEMENTS OF THE  
DIVISION OF COMMERCIAL FISHERIES  
DEPARTMENT OF CONSERVATION AND DEVELOPMENT  
For Biennium 1946-1947—1947-1948

	1946-47	1947-48
<b>ADMINISTRATION &amp; INSPECTION</b>		
Commissioner's Salary.....	\$ 4,800.00	\$ 5,400.00
Salaries & Wages-Staff.....	23,057.00	34,346.00
Supplies.....	228.20	227.47
Postage-Tel & Tel.....	374.59	464.36
Travel Expense.....	785.10	881.99
Printing & Binding.....	446.91	630.18
Motor Vehicle Operation.....	3,857.65	4,496.58
Office Rent.....	1,200.00	-----
Insurance & Bonding.....	-----	12.25
Equipment.....	-----	19.95
Other Sources.....	74.00	183.59
TOTAL.....	\$ 34,823.45	\$ 46,662.37
<b>OPERATION PATROL BOATS</b>		
Salaries & Wages.....	\$ 14,548.35	\$ 22,633.30
Supplies.....	3,948.34	4,500.00
Gas & Oils.....	2,654.03	3,790.66
Repairs.....	7,691.88	6,282.86
Equipment.....	199.99	1,527.38
Subsistence.....	3,185.00	4,219.00
Docks & Warehouses.....	264.28	395.45
Marking Fishing Limits.....	392.10	444.00
Fire Insurance-Patrol Boats.....	90.00	90.00
Purchase of Boat.....	12,951.56	2,162.65
TOTAL.....	\$ 45,925.53	\$ 46,045.30
<b>SHELLFISH SANITATION</b>		
Supplies.....	\$ 86.11	\$ 103.01
Equipment.....	34.64	186.61
TOTAL.....	\$ 120.75	\$ 289.62
<b>OYSTER DEMONSTRATION FARM</b>		
Salaries & Wages.....	\$ 1,380.00	\$ 1,050.00
Supplies.....	261.17	81.67
Subsistence.....	240.00	210.00
Shell Planting.....	-----	635.00
TOTAL.....	\$ 1,881.17	\$ 1,976.67
<b>SECTION BASE</b>		
Salaries & Wages.....	\$ 1,908.34	\$ 800.00
Lights, Water, Heat.....	400.95	470.79
Building Repair.....	-----	8,794.63
Repairing Dock.....	-----	3,600.00
Subsistence.....	27.00	-----
Tel & Tel.....	50.09	-----
TOTAL.....	\$ 2,386.38	\$ 13,665.42

## STATEMENT OF RECEIPTS AND DISBURSEMENTS—Continued

	1946-47	1947-48
SECTION BASE—Continued		
Employees War Bonus.....	\$ 3,888.00	\$ .....
Emergency Salary.....	2,400.00	.....
Shell Planting.....	12,440.00	.....
Total Expenditures.....	\$ 103,865.28	\$ 108,639.38
Less. Receipts.....	65,213.25	60,001.94
APPROPRIATION.....	\$ 38,652.03	\$ 48,637.44
RECEIPTS		
Food Fish Licenses & Taxes.....	\$ 16,011.83	\$ 15,485.35
Oyster Licenses & Taxes.....	14,866.06	18,948.23
Clam Licenses & Taxes.....	1,473.43	1,498.40
Crab Licenses & Taxes.....	3,507.49	4,948.71
Menhaden Licenses.....	17,916.00	11,104.50
Power Boat Licenses.....	580.00	308.00
Escallop Licenses & Taxes.....	18.05	335.10
Other Sources.....	1,942.39	1,673.65
Sale of Oyster Demonstration Farm.....		3,500.00
Transfers Purchase of Boat.....	8,898.00	2,200.00
TOTAL.....	\$ 65,213.25	\$ 60,001.94

# KIND, QUANTITY AND VALUE OF FISH TAKEN IN WATERS OF NORTH CAROLINA

For the Period July 1, 1946 to June 30, 1948

Kinds of Fish	No. Pounds	Value
Spotted Trout .....	2,250,000	\$ 675,000.00
Gray Trout .....	9,400,000	1,410,000.00
Sea Mullet .....	600,000	60,000.00
Blue Fish .....	800,000	120,000.00
Mullet .....	5,250,000	787,500.00
Croakers .....	7,300,000	730,000.00
Spots .....	10,300,000	824,000.00
Hog Fish .....	600,000	60,000.00
Mackerel .....	600,000	120,000.00
Shad .....	900,000	450,000.00
Herring .....	15,200,000	760,000.00
Butters .....	800,000	80,000.00
Carp .....	950,000	142,500.00
Rock or Striped Bases .....	850,000	255,000.00
Flounders .....	1,900,000	285,000.00
Puppy Drum .....	600,000	90,000.00
White Perch .....	600,000	90,000.00
Cats .....	600,000	90,000.00
Eels .....	75,000	11,250.00
Jack .....	400,000	48,000.00
Pike .....	30,000	3,600.00
Pompano .....	12,500,000	3,750.00
Channel Bass .....	125,000	10,000.00
Sheep Head .....	10,000	2,000.00
TOTAL FOOD FISH .....	60,152,500	\$ 7,107,600.00
Shrimp .....	9,048,533	3,166,987.00
Menhaden (No. Fish) .....	445,250,000	9,225,550.00
TOTAL VALUE FIN FISH .....		\$19,500,167.00

## SHELLFISH

Oysters .....	567,770 (bushels) 4 pk. ....	681,324.00
Clams .....	47,280 (bushels) .....	94,560.00
Soft Shell Crabs .....	61,706 (dozen) .....	123,412.00
Escallops .....	6,463 (gallon) .....	25,852.00
Hard Crabs .....	8,892,000 (pounds) .....	444,600.00
TOTAL VALUE SHELLFISH .....		\$ 1,369,748.00

## TOTALS

Value of Fin Fish .....	19,500,167.00
Value of Shellfish .....	1,369,748.00
TOTAL VALUE WATER PRODUCTS .....	\$ 20,869,915.00



## DIVISION OF COMMERCE AND INDUSTRY

Although not totally unexpected, the rate and volume of industrial growth in North Carolina during the immediate postwar years, including the biennium covered by this report and the latter part of the prior two-year period, constitute a most gratifying surprise.

During these periods, the rate of industrialization was probably greater than for any similar period in the history of the State. This development was particularly noticeable in view of the fact that North Carolina had relatively little in the way of new war industries. For this reason, the large number of war plants available in many of the States were not to be had in North Carolina.

The limited number of war industry buildings owned by the government in North Carolina usually found a ready demand from manufacturers who were interested in facilities in this part of the country. There is no question that many times the amount of war plant space available in North Carolina could have been disposed of at the end of World War II.

Inquiries for manufacturing space in North Carolina during the biennium have been so persistent as to give assurance that any industrial building in even fair condition and priced reasonably for sale or lease would not remain on the market for long. In view of this scarcity of industrial buildings, the Division has used every means at its command to keep up with the availability of buildings and to urge every reasonable means of providing additional structures. During the past few years, the availability of a good building at the right price has been almost a guarantee of a new industry. Although the demand is not as great as previously and prospects are more discriminating as to quality and location, inquiries are still being received for such facilities.

*Personnel:* For several years prior to this biennium, the Division had been operated with only a skeleton personnel. During these years, extreme difficulty was experienced in finding trained personnel with the background of experience required for the program. The situation was alleviated considerably during the biennium as men were released from the armed services and various war projects were terminated.

During the biennium, the staff was built up and gained a considerable amount of valuable experience. At the close of the biennium the staff consisted of six men and a clerical force of four. With the exception of Philip Schwartz, industrial analyst and office manager, all of the engineering force were employed during the biennium.

Initially, W. C. Guthrie was employed to head up the rural industries branch of the Division, but he was later transferred to the general industrial promotional work and the larger part of his duties since that time have consisted of contacting industrialists in other states who are interested in new plant locations.

Horace P. Cotton, an engineer with several years of executive experience, took over the direction of the rural industries program. Also assigned to this program are Milton M. Croom, a chemical engineer with experience in industry; Ralph T. Isley, a geologist; and C. D. Kirkpatrick, an agricultural engineer.

M. L. Shepherd, an engineer, who served in the rural industries branch and later in general industrial promotion, reentered the military service in 1947. W. C. Lehew, who spent about two years with the Division as assistant industrial engineer, resigned the latter part of 1946 to enter private business.

There has been an unusually heavy turn-over in clerical personnel during the biennium. Most of those leaving the Division have accepted better paying positions elsewhere.

At no time, however, has the Division been able to complete its authorized staff. Currently the Division is utilizing all available office space. It does not appear to be practical to employ additional personnel until additional working space can be had.

### GENERAL INDUSTRIAL PROGRAM

The entire two-year period covered by this report has been one of considerably beyond normal activity, although the number of new prospects has fluctuated from time to time. Even during the periods when the number was small, the work load did not slacken to any extent inasmuch as the Division continued its contacts with the manufacturers with whom it was previously in touch.

Over a period of several years, the Division has built up a prospect list of several hundred industrialists who have shown at least some interest in locating a plant in the future. It is a matter of considerable interest that some of the prospects who were first contacted as much as eight or ten years ago have purchased North Carolina sites and announced building plans within the last several months. Contacts with several have been maintained over a period of eight or ten years.

Once contact is established with manufacturers, who show an interest in new plant sites, they are considered prospects until definite word is received that they are no longer interested either by virtue of having found a location or through alteration of plans. Thus over a period of years the prospect list is steadily built up and the number of continuous contacts is enlarged. Even though the company may have located the plant originally under consideration, contacts are continued in a large number of cases in hope that there might be further expansion.

*Advertising:* One of the specific purposes of the State Advertising program is the industrial development of the State. The Division of Commerce and Industry has continued, with the advertising agency, the responsibility



of recommending publications to be used in order to reach the specific audience desired. Industrial copy is approved by the Division. During the biennium, industrial advertisements have been carried in the following:

American Wool & Cotton Reporter	Manufacturers Record	Time
Blue Book of Southern Progress	Nation's Business	U. S. News
Business Week	Newsweek	Wall Street Journal
Fortune	New York Times	

Toward the end of the biennium, the trend has been toward using primarily the business magazines, and copy was carried less frequently in general publications. The idea in this shift was to reach a more concentrated industrial audience. Copy in recent advertisements has centered, to a considerable extent, on the availability and high quality of North Carolina labor.

*Plant Location Activities:* These activities through the biennium have been more intensive than ever before, partly because of the increase in number of prospects and also because the competition has become progressively more keen from other States. Virtually all of the States in the Nation have either organized or strengthened their industrial promotional activities. Often the keenest competition is from States which hitherto had not had organizations for that purpose.

Numerous communities which have previously not been active in trying to attract industry have launched aggressive programs. This true in other states as well as in North Carolina. One of the objectives of the Division has been to interest additional communities in industrial development programs. In every case, the Division endeavors to work closely with such groups. Services of the staff are made available to any interested community to supplement its activities and to present the general attractions of the State.

Particular stress is continuously being laid on diversification of industry and the dispersion of new projects as widely as possible. However, it should be kept in mind that the most the Division can do is to point out opportunities and urge full consideration of the under-industrialized communities. In a limited number of cases, these measures appear to have had some influence, but more often preconceived ideas and special requirements appear to prevail. The rural industries program which seeks local development is intended to supplement the general promotional program in communities where development is slow or where there is currently no manufacturing.

One of the more important activities of the Division has been to maintain a continuous picture of the status of industrial development in North Carolina. The three-year period, 1945-47, was the most active ever recorded from this standpoint in the State. A study by the Division shows the following progress in new and planned projects and expansions:



## Recapitulation, 1945-1947 (3 years)

1945 New.....225	Investment	\$47,660,000	Workers	16,165	Payroll	\$20,930,500
1946 ".....613	"	49,416,500	"	29,106	"	49,572,966
1947 ".....284	"	14,933,000	"	6,819	"	12,957,906
Totals.....1,122	"	\$112,009,500		52,090		\$83,461,372
1945 Expan.....162	Investment	36,530,000	Workers	18,705	Payroll	\$25,569,000
1946 Expan.....228	"	56,187,000	"	17,006	"	27,502,150
1947 Expan.....161	"	33,652,000	"	5,991	"	13,037,508
Totals.....551		\$126,369,000		41,702		\$66,108,658

## Grand Totals, 1945-1947 (3 years)

New.....1,122	Investment	\$112,009,500	Workers	52,090	Payroll	\$83,461,372
Expan.....551	"	126,369,000	"	41,702	"	66,108,658
Totals.....1,673	"	\$238,378,500	"	93,792	"	\$149,570,030

The term New Industries above signifies those actually constructed during the three years and others where positive decisions had been made and where the projects had reached the blueprint stage. In several cases, only estimates were used, but these invariably were on the conservative side. The number of workers scheduled to be employed and their prospective wages are only estimates from the best information available.

## RURAL INDUSTRIES

Since the latter part of 1946, the development of small manufacturing plants in rural sections, utilizing nearby raw materials, and financed by local capital, has been one of the major objectives of the Division. For some years the need for a more vigorous program of this type had been felt but the facilities had not been available.

The program was launched as a result of a conference called by Governor R. Gregg Cherry in November, 1945, to consider measures by which the development of rural industries might be encouraged. A program to meet the problem of permanent employment for excess farm labor being made available by increased mechanization of the farm was proposed by Dr. Clarence Poe, editor of the *Progressive Farmer*. Meeting in committees, the group suggested numerous development opportunities, and recommended that an active campaign be launched.

The program was placed under the direction of the Division of Commerce and Industry, and unencumbered funds in the Division were made available. The General Assembly of 1947 made a more liberal appropriation for the work, and the staff has subsequently been enlarged. A rural industries branch of the Division has been organized, and it has become one of the largest and most aggressive features of the work.

Experience has shown that the average rural industries project requires considerably more time and research than that spent with each general inquirer. Usually the industrialist who makes inquiry concerning a location in the State has a considerable background in industry and is concerned largely with sites and general conditions which would have an effect on his operations. Often this type of prospect has competent engineering services and the main problem resolves itself into convincing him that some site or facility in the State will meet his requirements better than those to be found elsewhere. On the other hand, often the rural industry prospect has no manufacturing background, and in addition must raise a large percent of the capital.

Essentially, the work of the rural industries branch falls into two categories: assisting with the promotion of someone else's ideas, and evolving new ideas as to types of industries which could logically be developed and attempting to sell those ideas in the applicable area. The next step then is to assist individuals or local promotional agencies in the development of these ideas into an actual industry.

In the first case it has been necessary that the engineers from this office supply many types of information in divergent fields in order to assist the prospective developer to accumulate information upon which to base an intelligent decision as to the general opportunities offered in the proposed industrial field. After such a decision is made, it is usually necessary to follow the project all the way through a survey of available local raw materials, labor supply, "know how," markets, and the financing of the development. Without such a follow-up, the "budding" industry will frequently break down at some stage prior to actual completion.

In the second category, the Division has endeavored to select certain types of industries which are believed to be particularly suitable for the State and then to accumulate the necessary data for their successful promotion. This phase of the work includes instances where an idea for a development has been given in a talk before a civic club, for example, where interest in industrial development was high and yet no definite ideas existed as to just what particular type of plant would be selected. In such cases, the member of the staff has assisted with the selection of the type of industry and then followed through by accumulating information on the selected industry, including capital requirements, machinery and equipment, raw materials and costs, processing costs, and profit possibilities. Following the accumulation of these data, the staff representative has assisted local promotional agencies in the development of the selected plant by helping to sell the idea in the community. Such follow-up has included assistance in financing and studies of market possibilities.

The response to suggestions of certain types of industrial development has been most encouraging. For instance, the number of fence post preservation plants erected since the issuance of the publication on that subject is considered unusual. The latest tabulation shows seven in operation, seven under construction, and others under consideration.



There has been substantial progress in the feed industry and associated industries such as dehydration, drying, and storage. Food and wood products industries are other lines that are moving forward. Indicative of the trend toward diversification is the following table of 39 different types of industry established in the State during the biennium:

Trailer Mfg.	Grain Drying	Poultry Dressing Plants
Rug Mfg.	Dairy Products	Fence Post Preservation
Casein Glue	Bottling Plants	Sand and Gravel Production
Roofing Felt	Concrete Products	Freezing and Cold Storage
Feed Mills	Nut Products	Food Products (includes
Men's Socks	Cotton Textiles	dehydration, peanut products,
Limestone	Hosiery Finishing	potato products, etc.)
Bag Mfg.	Toothpaste Mfg.	Children's Knitwear
Brick Mfg.	Wood Products	Agricultural Implement Mfg.
Mop Mfg.	Manganese Salts	Grain elevators and storage
Tool Mfg.	Metal Fabrication	Farm Equipment Repair
Insecticides	Wall Cleaning Service	Cutting and Sewing Plant
Roofing Mfg.	Meat Processing Plant	Clutch Rebuilding Service
Pickle Plant		

*Publications:* The second category mentioned previously in the description of procedures in the rural industries program involves an active publication program for the presentation of industrial opportunities. Decision on the types of industrial opportunities is made only after the opinion of various sources that are qualified to advise are sought and weighed carefully. After a particular line of industry is selected for promotion, the advice and assistance of well known authorities are sought and sometimes these authorities are asked to prepare the report.

These development opportunities are presented as briefs, bulletins, and special reports. Through the end of the biennium, five briefs have been prepared and distributed under the following titles: No. 1, "Opportunities for Fruit and Vegetable Processing in North Carolina," by Bailey S. Rich; No. 2, "Opportunities for Wood Products Industries," by W. C. Guthrie; No. 3, "Industrial Opportunities in Processing North Carolina Sweet Potatoes," by M. L. Shepherd; No. 4, "Rural Feed Grinders and Mixers," by Robert S. Curtis and No. 5, "Industrial Opportunities Relating to the Poultry Industry," by R. S. Dearstyne.

The first publication in the group known as the Resource-Industry Series was issued shortly before the close of last biennium on the subject of "The Preservative Treatment of Fence Posts." During this report period three additional numbers in the series have been issued. These are Resource-Industry Series No. 2, "Roofing Manufacture Opportunities in North Carolina," by T. G. Murdock; No. 3, "Some Industrial Opportunities in Dehydration," by M. L. Shepherd; and No. 4, "Opportunities in Rural Industries—Wood," by R. A. Hertzler, A. S. Todd, and Walton R. Smith.

A new type of report under the title of Information Bulletins has been started. The first in this series was "Opportunities in the Feed Manufacturing Industry in North Carolina," by D. D. Barber. A special bulletin on the subject of "Commercial Farm Machinery Repairs," by M. M. Croom



is one of the general reports. Ralph T. Isley prepared a supplement to Resource-Industry Series No. 2, and now has under way a further supplement suggesting the apparent opportunity for a plant to produce granules for asphalt roofing. The most recent promotional report is a special bulletin on "Opportunities for a Portland Cement Plant in North Carolina," by M. M. Croom.

The brief series are short, concise statements, with some supporting reasons, pointing out primarily why the opportunities for the particular type of industry suggested seem to be outstanding. These briefs are in mimeographed form. The bulletins are in somewhat more detail and are also mimeographed. The Resource-Industry Series are printed and cover the subject more thoroughly than the other publications.

While it is difficult and almost impossible to measure fully the effects of these publications, many results are apparent. The Division advocates that every project be given thorough study and be considered from every possible angle. Because mature consideration is advisable, the effect of the program is not always immediately discernible. Sometimes months or years are required before the idea is translated into a plant.

Even though publications may apparently cover the subject thoroughly, it is never possible to include all information needed by the prospective developer, and the Division is called on by most of the inquirers to supply supplemental data which sometimes requires considerable additional research.

Besides the publications of various types, the Division also employs almost every known means of publicizing suggestions for industrial development. Among these channels are the press, the radio, appearances before civic clubs and community organizations of various descriptions, and personal conferences with officials and influential citizens.

The policy of the Division is to give those who show an interest the maximum assistance in the form of background of the industry in question, including approximate investment required, availability of raw materials, demand for product, current extent of development, possible production costs, and on numerous other subjects. When the preliminary problems are solved, the Division is in a position to inform the inquirer where competent engineering service may be had.

## STATISTICS AND RESEARCH

An intimate knowledge of his product is accepted as one of the most important requirements of a salesman. Since the primary job of this Division is either to sell the State to the outsider who is considering the erection of manufacturing facilities or the idea of industrial opportunities to North Carolinians, the most thorough knowledge possible of the State and the various communities is essential.

To meet such a requirement, it is necessary for the Division to collect and tabulate information on all available subjects having a bearing on industrial locations for the use of the staff and to place in the hands of prospects.

The scope of useful data is almost without limit since virtually every factor which affects human life has a bearing on industry. An increasingly large number of the more progressive manufacturers are broadening their field of comparison between Communities and States. For instance, many of these want to know the conditions under which their workers live, their educational facilities, opportunities for recreation, efficiency and vision of officials, and other influences. Thus the range of data required by the average prospective manufacturer is expanding progressively.

It is true that the above factors did not enter as importantly in consideration during the war period when immediate production was the major requirement. Also, during the immediate post war years when industry had its eye primarily on conversion and capturing long neglected markets, the intangible features did not receive the usual amount of attention.

As the interval following the war lengthens and with stiffer competition developing on the part of regions and States, the average industrialist is inclined to consider every factor involved in successful operation in greater detail. This becomes more noticeable in the longer periods devoted by industrialists to the consideration of location factors.

Coincidental with the broadening range of interest on the part of the prospect, more detailed data is required on physical characteristics such as sites, transportation, water and power.

The result of this trend is to increase the scope of office and field studies on the part of the staff of the Division and time spent on each project. It has become necessary to search out sites that have been hitherto overlooked and to gather information on each. This involves more field trips and closer study to develop needed data. In this program, the Division works closely with other development agencies, and there is a constant exchange of information. Full information on a site, enabling all of its advantages to be presented fully, may be the difference between its selection or rejection. Even if a site may be the ideal for a certain operation, if it is not presented effectively the industry may be lost.

*Special Surveys:* As a part of its program for gathering and presenting industrial information, the Division has urged various parts of the State to survey their facilities for development and to present the facts in report form.

An outstanding example of the possibilities open to regions and communities through their own facilities and those of cooperation agencies is the inventory of assets by eleven Western North Carolina counties and their communities carried out by the Western North Carolina Associated Communities with the cooperation of the Department of Conservation and Development, the former State Planning Board, and the Tennessee Valley Authority. Information blanks were worked up by the three agencies and the field force was provided by WNCAC. Publication of the report was also a cooperative undertaking.

The Western North Carolina Inventory covers the counties in the extreme southwestern part of the State, from Buncombe, Henderson, and Madison west, and including Cherokee, Clay, Graham, Haywood, Jackson,



Macon, Swain, and Transylvania. In addition to the counties, the inventory covers the larger communities. The report was issued in one volume and in county units.

Several other counties have become interested in making similar inventories and the full cooperation of the Division has been offered to all of these. Forms used in the WNCAC survey and others are available in office of the Division.

*Factory Buildings:* The lack of existing manufacturing space and the high cost of construction have been two of the definitely limiting factors to industrial expansion in the State.

Realizing this fact, the Division has attempted in numerous ways to try to help solve the problem. The first measure taken was a survey several years ago to list all available manufacturing space in the State and to include a brief description of each in a list issued at intervals. The practice of issuing these lists has been continued. Prior to this biennium, 21 of the inventories of buildings were made and an equal number of lists was issued. During the biennium, 10 additional lists were distributed. These lists were placed in the hands of hundreds of manufacturers, distributors and promotional agencies interested in the industrial progress of the State.

The Division has continuously called to the attention of various North Carolina communities the possibilities of industrial expansion through community development projects for the purpose of providing factory buildings on a lease basis. The Division has repeatedly cited examples of what has been accomplished in various towns throughout the country with this type of project. The advisability of taking some action while the movement towards decentralization is definitely underway has been stressed.

Although the community development type of project has not apparently gained the momentum in North Carolina that has been acquired in some other States where industrial development has been slow, the movement is spreading. Several communities have already obtained new plants through such a procedure; others have organized and are prepared to negotiate; and still others are considering seriously such a project.

*Special Research:* There is a general belief that research will point the way to the development of numerous types of industries not currently represented in North Carolina, especially those relying on nearby raw materials.

One of these types of industries is Portland cement. Virtually every adjoining State has a cement plant, but there is none here in spite of the fact that North Carolina is one of the top consumers of the material in the southeast and raw materials required for its manufacture in apparently sufficient quantities and quality are available. The Division is attempting to prove the practicability of a Portland cement plant in North Carolina and to interest developers.



As a result of a cooperative arrangement with the Division, the Engineering Experiment Station at State College undertook a special investigation to test the suitability of North Carolina limestones and clays for cement. Tests at the College have proven that a good quality of cement can be made from raw materials found in the State. Considerable data has already been assembled by the Division of Mineral Resources on the essential mineral deposits, and this information has been most valuable in the efforts to obtain consideration of a plant.

*Roofing Granules:* Another apparent opportunity for a new industry based on North Carolina raw materials is the manufacture of granules for asphalt roofing. Following a campaign in cooperation with the Division of Mineral Resources, to show the opportunities for the manufacture of asphalt roofing, the first plant of this type was erected in the State in 1948, and a felt mill was under construction. A granule plant somewhere in the State will round out the development as initially conceived.

Arrangements have been made with the State College Mineral Experiment Station at Asheville to conduct experiments to find a suitable raw material in the State from which to manufacture granules. The project will be initiated when suitable personnel is obtained for the laboratory.

*Other Investigations:* Additional investigations, which should lead to the development of new industries are being given careful consideration. It is the plan of the Division to propose a modest appropriation for next biennium to finance such projects, probably in the sum of \$25,000 annually.

Should this appropriation be made available, it is the plan of the Division to seek the counsel of individuals and agencies that are well qualified to advise on the selection of the projects. Since the Department does not have nor does it plan the establishment of a laboratory, any experiments would be carried out by agencies in the State which have the necessary facilities. Should these facilities not be available, the work would be done wherever it could be accomplished most economically and effectively.

## DIVISION OF FORESTRY AND PARKS

As was pointed out in the Department's Eleventh Biennial Report, the vital place of North Carolina's forest resources in her economy was emphasized by the needs of the Second World War, probably more than any other activity or happening in our modern history. This was directly reflected in the support rendered to the State's forestry program by the 1947 General Assembly. Probably the same can be said for the State Parks program, which received from the same General Assembly much greater support than at any previous time in the history of the Parks work.

Increased State appropriations made by the 1947 General Assembly permitted

(a) A very appreciable step toward the Division's first goal of adequate state-wide forest fire control. Beginning with the start of the 1947-48 fiscal year, 13 new counties were placed under cooperative fire protection, this being the greatest number of counties organized in any single fiscal year in the Division's history.

(b) The greatest single step in the Division's history toward providing the sort of forest management advice and service program so urgently needed on our 17,000,000 acres of non-Federal forest land.

(c) Raising the production of tree seedlings in the State's two nurseries from a previous high of about four and a half million per year to something over six million for the season 1947-48 and an expected 9,000,000 for the season 1948-49.

(d) Inauguration for the first time of an effective program of maintenance and operation on the existing state parks, together with the resources for an excellent start on long needed permanent improvements in those parks.

**Personnel.** The situation with respect to technical foresters in the Division, although much better during this biennium than during the preceding one, has remained quite unsatisfactory. There has been considerable personnel turnover, attributable in part to tremendous expansion in employment of foresters during the past several years and in part to general salary restrictions in State employ.

With Budget Bureau approval and chiefly as a direct result of increased Federal Fire Control funds made available because of increased state and county appropriations within our organization, our 10th District Office was established at Lexington, in Davidson County, on November 1, 1947. An Assistant District Forester was immediately promoted to District Forester and placed in charge.

As noted in the last Biennial Report, the long-needed Branch of Information and Education was established on March 1, 1946, but lapsed again with the resignation two months later of Associate Forester Beasley. We



were unable to fill suitably this position until February 1, 1947, when Assistant Forester Robert W. Shaw was employed. This activity has since been under his supervision and considerable progress has been made despite hampering limitations with respect to budget and number of personnel.

Early in 1945, there was discussion among the Director, several Board members and the State Forester, as to the feasibility of creating a new Division of State Parks in the Department. The administration of State Parks activities has heretofore been a function of the Division of Forestry, as is the case in South Carolina and some other states. The decision in 1945 was that such a new Division would be desirable whenever the State Parks budget should reach sufficient proportions to be comparable to other Divisions in the Department. The support given to the State Parks program by the 1947 General Assembly placed the Parks budget in that favorable position and action was taken by the Director, the Board of Conservation and the State Forester in April, 1948, to clear the way for setting up such a new Division. It is expected then, that this is the last Biennial Report in which the State Parks program will be covered as a Branch of the Division of Forestry.

Legislation as noted above, appropriations by the 1947 General Assembly to the Department for the work of the Division of Forestry and Parks were especially noteworthy. State appropriation for all forestry purposes for each year of the 1947-49 biennium was approximately \$390,000, including money earmarked for salary increases to current personnel. This compares with the same figure for the preceding biennium of approximately \$268,000 per year (also including emergency salary and emergency bonus granted to then-current personnel). With respect to State Parks, the appropriation for 1947-48 was \$161,596 as compared with \$34,875 for 1946-47, plus an additional \$500,000 for permanent improvements during the two year period 1947-49.

Chapter 577 Session Laws of 1947. This law, sponsored by the Department, provides for the designation of certain employees of this Department to be commissioned by the Governor, at the request of the Director, as special Peace Officers. The purpose is to give certain of our employees this highly necessary authority in the operation of our State parks, State forests, etc. In the past, the Department has had to have its men commissioned for that purpose by the Sheriff of the county or counties within which lay the State property concerned.

Chapter 56 Session Laws of 1947. Our law previously required that the individual county pay one half the total forest fire control expenditures by the Department within that county. This law, sponsored by the Department, deletes the former provision fixing the county's share of the expense at one-half, and also deletes the former limitation of five mills per woodland acre on the county's contribution. It provides that the counties are not liable for any part of the fire control expenses unless such liability is specifically authorized by the Board of County Commissioners under a prior written agreement with the State Forester. Appropriations thus made by the counties are not to replace State and Federal funds which



may be available to the State Foresters for the work, but will be supplementary thereto. The Bill also amended the previous law by striking out the 30 cents per hour top limitation upon the compensation of Forest Wardens.

Chapter 384 Session Laws of 1947. This law, sponsored by the Department, provides the necessary legal authority for this Division to make a reasonable charge for technical forestry service to owners and operators of forest land. Heretofore the Division was without such authority. This law is so written that charges for such services are permissive rather than mandatory, especially under certain conditions.

Chapter 697 Session Laws of 1947. This law, sponsored by the Department gives the Department full legal background for the charging of reasonable fees for the use of facilities in State forests, State parks, State lakes and any other areas under the Department's charge.

Chapter 400 Session Laws of 1947. This law, while not introduced by the Department was directly sponsored and endorsed by the Department. It provides merely that the standard rule for determining the number of board feet in a tree or log should be the so-called "International One-Fourth Inch Log Rule." The law states, however, it shall not prevent the buyer and the seller from agreeing that some other Log Rule should be used in any contract between them.

Temporary Forest Survey Commission. The last Biennial Report noted that this Commission, appointed by Governor Cherry as a result of legislation passed by the 1945 General Assembly had held two meetings up to July, 1946. The Commission's report was transmitted to Governor Cherry under date of March 6, 1947. At that time, however, the 1947 General Assembly was close to adjournment and no action was taken on the Commission's report or its recommendations.

#### PUBLICATIONS:

One bulletin was printed by the Division during the biennium.

Bulletin No. 53 "Forest Resource Appraisal of North Carolina," by Geo. K. Slocum and Chas. R. Ross.

This publication was written during the previous biennium but funds were not available at that time to publish it. In addition to this Department publication, a large number of publications for distribution were either purchased or received free from other agencies; one of the most outstanding being "Ten Lessons In Forestry" of which 10,000 copies were secured for controlled distribution to selected schools.

#### FOREST FIRE CONTROL

The forest area under protection by the State Forest Service increased by approximately 1,878,870 acres during the period covered by this report. As the following Progress Chart will show, this is due primarily to the considerable increase in the number of protected (or cooperating counties). Financial cooperation in fire control was continued with the Federal government under Section 2 of the Clarke-McNary Law, whereby Federal funds are allotted to the several states for fire prevention, based largely upon appropriations made available within the state themselves.

It will be noted in the Progress Chart that the Federal appropriation has increased considerably during the period of this report. This increase was due largely to the fact that the State appropriation increased considerably during the same period. It will be noted that for the last year of the biennium considerably more State funds were available which resulted in the State being able to qualify for a larger Federal allotment. The State appropriation, under the present system of financial cooperation with the Federal government, counties and private landowners, is, therefore, the key to the financial picture.

*Supervisory Personnel:* Personnel problems were acute during this biennium with our technical forester personnel whose duty it is to supervise both the Fire Control and the Forest Management programs. It was also true with respect to the seasonal manpower employed during the fire seasons such as towermen, smokechasers, and fire crews. As the Progress Chart further indicates, four additional foresters and three additional Assistant District Foresters were employed during the period, although the personnel list will show that there was a complete turn-over, during the period, in these Assistant District Forester positions.

The District Offices as of June 30, 1948 are as follows:·

District 1—Asheville	District 6—Fayetteville
District 2—Lenoir	District 7—Elizabeth City
District 3—Rockingham	District 8—Whiteville
District 4—New Bern	District 9—Sylva
District 5—Rocky Mount	District 10—Lexington

In May 1948, J. R. Spratt, Assistant Forester In Charge of Fire Control, resigned for a higher salaried position in private employment. His resignation represented a distinct loss to the Department. Chief Forest Inspector P. W. Tillman, with over twelve years of experience with the Department, was placed in charge of the Branch of Fire Control on an acting basis. W. J. Clark continued as Forest Inspector; A. B. Smith, as Equipment and Maintenance Supervisor; and M. M. Carstarphen as Law Enforcement Ranger. In December of 1947, Paul Dillon was employed as Radio Engineer, thus making possible the inauguration of the radio program, as mentioned in the last Biennial Report.

*Present Organization:* Each of the 78 counties under protection has a full-time County Warden devoting his time entirely to fire control and other forestry work. These wardens are furnished with a one-half or three-quarter ton pickup truck for use in their work. In addition to the County Forest Wardens, there are nine full-time Association Rangers, several year-long towermen, and towermen-smokechasers and tractor operators.

All Central Office Positions are filled in Fire Control except one and plans have now been completed to fill that one from our organization. They consist of the following:

Assistant State Forester in charge of fire control, Chief Forest Inspector, Forest Inspector, Law Enforcement Ranger, Equipment Supervisor, and Radio Engineer.



*County Cooperation:* The Forest Fire Control program of the Department is still being operated on the basis of County protection units and financial cooperation by the counties with the Department. This system has gradually built up excellent support among the counties to the extent that 78 of the State's 100 counties were cooperating at the end of the biennium and their contracted appropriations amounted to approximately \$129,000. During the last year of the biennium the Department's cooperation with the counties was changed from a 50-50 basis to one asking the counties to appropriate from 25% to 40%, based on their ability to pay, as reflected by each county's taxable wealth.

This new method was readily accepted by all the former cooperating counties and it made possible our cooperation with thirteen new or additional counties, representing an additional 1,878,870 acres to which no protection had been afforded previously.

This new method of cooperation with the Counties places this Department in a much more advantageous position for such cooperation, and it is hoped that with increased State and Federal funds fire protection can eventually be extended to all the counties in the State.

#### PROGRESS CHART

Fire Control Personnel	As of June 30, 1946	As of June 30, 1947	As of June 30, 1948
Central Office Supervisors.....	5	5	5
District Foresters.....	6	8	10
Asst. District Foresters.....	2	4	5
Acting District Foresters.....	2	1	
District Rangers.....	11	10	11
County Forest Wardens.....	63	65	78
Protective Association Rangers.....	9	9	9
Counties Cooperating.....	63	65	78
Private Timberland Owners Cooperating.....	38	40	47
Forest Area Under State Protection (Acres).....	12,642,324	12,893,454	14,521,194
Finances:			
Appropriation by Counties.....	\$ 105,550	\$ 118,300	\$ 128,975
Appropriation by Private Owners.....	15,854	16,374	17,757
Appropriation by State Forest Fire Control.....	169,249	180,765	324,800
Appropriation by Federal Government.....	164,720	183,521	233,302
Presuppression Fire Lines.....		6,200	10,000
Total Appropriations.....	\$ 458,337	\$ 505,160	\$ 714,834
Actual Funds Available Per Acre Protected.....	3.6 cents	3.9 cents	4.9 cents

**NOTE:** Adequate and efficient forest fire protection on a State-wide basis could be given to all of the State non-Federal forest area (about 17,000,000 acres) at a cost of about 7 cents per acre per year. This figure results from a Survey made by the Department in cooperation with all other Southern States and with the United States Forest Service.



Aside from the fact that some twenty-two counties, comprising approximately 2,400,000 acres of the State's nearly 17,000,000 acres of privately-owned forest land, have no form of organized forest fire protection, the present protected area of seventy-eight counties or the remaining 14,600,000 acres of non-Federal forest land is receiving only a little over one-half of adequate protection. A Survey of the cost of adequate forest fire control for the entire nation made in 1945 by the several State forestry organizations in cooperation with the U. S. Forest Service indicates that adequate protection in North Carolina will cost approximately 7½ cents per forest acre per year. As the Progress Chart will show, our protected area at the end of this biennium was receiving only about 4.9 cents per forest acre per year.

*Private Cooperation:* The policy of financial cooperation with private forest land owners, whereby they pay to the State an annual assessment which is matched with State and Federal funds and used to give more adequate protection to their holdings, was continued during the biennium. The number of private timberland owners partaking in this cooperative arrangement, and the total area of their forest holdings, varied little during the biennium. Although added private cooperation is easily available, particularly from large forest land owners, such as some of the forest products industries, it is believed that desirable and proper growth of the program based upon tax money offers a sounder basis for progress.

TABLE A  
COUNTIES COOPERATING AND ANNUAL SUMS MADE  
AVAILABLE BY THEM

Counties	1944-1945	1945-1946	1946-1947	1947-1948
Alleghany.....	750	975	1,000	700
Anson.....	2,000	2,300	2,400	2,400
Ashe.....				800
Avery.....	1,000	1,000	1,200	900
Beaufort.....	1,500	2,000	2,500	2,625
Bertie.....	2,000	2,450	2,250	2,500
Bladen.....	2,300	2,300	2,800	2,600
Brunswick.....	3,000	3,000	3,200	2,500
Buncombe.....	1,500	2,000	2,200	2,600
Burke.....	2,000	2,000	2,300	2,300
Caldwell.....	1,800	1,800	2,000	1,995
Camden.....	1,400	1,400		1,000
Carteret.....				1,500
Chatham.....	900	1,200	1,300	1,650
Cherokee.....	1,100	1,200	1,300	1,300
Chowan.....				900
Clay.....				500
Columbus.....	3,000	3,000	3,000	3,000
Craven.....	2,000	2,000	2,200	1,950
Cumberland.....	2,200	2,400	2,400	2,400
Dare.....	1,500	1,750	1,750	1,400
Durham.....	1,200	1,200	1,300	1,440
Duplin.....	2,150	6,000	3,900	3,200
Edgecombe.....	1,250	1,250	1,500	1,470
Franklin.....				1,200
Gates.....	1,000	1,025	1,500	1,350
Graham.....	1,000	1,200	1,400	950
Granville.....				1,000
Greene.....	900	1,200	1,200	800
Halifax.....	1,200	3,000	1,500	1,890
Harnett.....	1,300	1,750	2,000	2,000
Haywood.....	1,200	1,200	1,500	1,500
Henderson.....	1,200	1,200	1,200	1,435
Hertford.....	1,200	1,200	1,400	1,500
Hoke.....			1,600	1,000
Hyde.....	2,000	2,000	1,000	1,500
Iredell.....				1,600
Jackson.....	1,000	1,500	1,700	1,700
Johnston.....	1,500	1,650	1,800	1,800
Jones.....			1,500	1,200
Lee.....	1,000	1,200	1,200	1,350
Lenoir.....	2,000	1,500	2,000	1,470
Macon.....	750	900	1,000	1,000
Madison.....				900
Martin.....	2,000	2,350	2,000	2,200
Mitchell.....				1,000
McDowell.....	1,200	1,200	1,500	1,500
Montgomery.....	1,500	1,500	1,500	1,500
Moore.....	3,000	3,250	3,400	3,400
Nash.....	1,500	1,500	1,700	1,750
Northampton.....	1,250	1,250	1,400	1,440
Onslow.....	1,250	1,800	1,800	1,950
Orange.....	1,200	1,200	1,200	1,400
Pamlico.....	2,500	1,500	1,800	1,200
Pasquotank.....				

TABLE A—Continued

Counties	1944-1945	1945-1946	1946-1947	1947-1948
Pender.....	1,500	1,500	1,500	1,500
Perquimans.....	1,200	1,500	1,500	1,250
Pitt.....	1,350	1,350	1,800	2,000
Polk.....	1,200	1,200	1,400	1,500
Richmond.....	1,800	2,200	2,400	2,400
Randolph.....				1,200
Robeson.....	2,000	2,000	2,250	2,450
Rutherford.....	2,000	2,000	2,000	2,000
Sampson.....	2,000	2,000	2,200	2,450
Scotland.....	1,250	4,800	1,700	1,700
Stokes.....				900
Surry.....	1,200	1,200	1,200	1,470
Swain.....	1,000	1,000	1,000	1,000
Transylvania.....	1,200	1,500	1,800	1,800
Tyrrell.....	1,200	1,200	2,000	1,700
Wake.....	1,600	2,500	2,700	2,800
Warren.....	1,500	1,800	2,000	2,000
Washington.....	2,300	2,600	2,800	2,000
Watauga.....			1,000	1,000
Wayne.....	1,400	1,800	2,050	2,200
Wilkes.....	2,000	2,000	2,000	2,040
Wilson.....	1,200	1,200	1,400	1,400
Yancey.....	1,000	1,000	1,000	900
NUMBER COUNTIES COOPERATING.....	63	63	65	78

TABLE B  
FOREST PROTECTIVE ASSOCIATIONS

Name of Association	Assessment Rate		Location in County	Number Individuals In Associations		Acreage Listed	
	1946-47	1947-48		1946-47	1947-48	1946-47	1947-48
Elk Creek.....	2½	2	Watauga, Wilkes, Caldwell.....	1	1	40,000	37,000
South Mountain...	1	1	Burke, McDowell, Rutherford, Cleveland.....	5	6	34,000	38,000
Sandy Run.....	3	3	Onslow.....	2	2	39,000	44,000
State College.....	3	3	Onslow, Jones.....	1	1	84,000	84,000
N.C. Pulp Co.....	4	4	Onslow.....	1	1	13,000	13,000
Holly Shelter.....	4	4	Pender.....	2	4	18,000	22,000
Orton.....	3	3	Brunswick.....	7	8	49,000	63,000
Riegel.....	4	4	Brunswick-Columbus.....	5	4	158,000	164,000
Southern Brunswick	4	4	Brunswick-Columbus.....	6	6	21,000	32,000
Waccamaw.....	4	4	Columbus-Bladen.....	11	14	38,000	46,000
TOTALS.....				41	47	494,000	543,000



TABLE C  
LIST OF STATE LOOKOUT TOWERS (to 6-30-48)

Name	Height	County	Date Erected	Built by	Initial Cost	Towerman's House
Mt. Mitchell.....	35'0"	Yancey.....	1927	Donation	\$ 25,000	3-room
High Windy.....	45'9"	Buncombe.....	1934	CCC	969	1-room
Tryon Mountain.....	45'9"	Polk.....	1934	CCC	873	1-room
Spivey Mountain.....	35'0"	Buncombe.....	1928	NCFS	778	1-room
Chambers Mountain.....	45'9"	Haywood.....	1934	CCC	942	1-room
Toxaway Mountain.....	45'9"	Transylvania-Jackson..	1935	CCC	889	1-room
Sassafras Mountain.....	35'0"	Transylvania.....	1932	NCFS & SCFS	750	SCFS home
Corbin Mountain.....	35'0"	Henderson.....	1932	NCFS & SCFS	750	SCFS home
Bearwallow Mountain.....	47'0"	Buncombe-Henderson..	1934	NCFS & CCC	800	1-room
Rendezvous Mountain.....	59'3"	Wilkes.....	1934	CCC	824	3-room
Pore's Knob.....	47'0"	Wilkes.....	1929	NCFS	861	1-room
Hibriten Mountain.....	80'3"	Caldwell.....	1927	NCFS & CCC	1,727	1-room
High Peak.....	59'3"	Burke.....	1934	CCC	981	1-room
Horse Ridge.....	35'0"	Burke.....	1928	NCFS	423	1-room
Biggerstaff Mountain.....	47'9"	Rutherford.....	1934	NCFS & CCC	749	1-room
Pinnacle Mountain.....	45'9"	Rutherford.....	1934	CCC	894	1-room
Roaring Gap.....	59'3"	Alleghany.....	1935	CCC	963	1-room
Scotland.....	72'9"	Scotland.....	1934	CCC	1,249	2-room
Southern Pines.....	72'9"	Moore.....	1934	CCC	991	4-room
Ellerbe.....	59'3"	Richmond.....	1934	CCC	1,273	4-room
Mt. Tirzah.....	72'9"	Person.....	1934	CCC	1,340	2-room
Bayleaf.....	99'9"	Wake.....	1937	CCC	1,761	4-room
Tuscarora.....	99'9"	Craven.....	1934	CCC	1,355	2-room
Wilmar.....	99'9"	Craven.....	1935	CCC	2,149	3-room
Wilson.....	99'9"	Wilson.....	1935	CCC	1,422	2-room
Dudley.....	99'9"	Wayne.....	1935	CCC	1,746	3-room
Snow Hill.....	86'3"	Greene.....	1934	CCC	1,397	2-room
Everett.....	99'9"	Beaufort.....	1936	CCC	1,410	2-room
Comfort.....	99'9"	Jones.....	1936	CCC	2,001	
Young.....	99'9"	Johnston.....	1936	CCC	1,519	
Earp.....	100'0"	Johnston.....	1936	Private & CCC	1,095	
Greenville.....	99'9"	Pitt.....	1936	CCC	1,574	
Kinston.....	99'9"	Lenoir.....	1937	CCC	1,938	4-room
Dixon.....	120'0"	Onslow.....	1937	CCC	2,459	4-room
Redditt.....	99'9"	Beaufort.....	1936	CCC	1,640	2-room
Deppe.....	120'0"	Onslow.....	1938	CCC	2,478	4-room
Edgecombe.....	93'9"	Edgecombe.....	1932	NCFS	1,029	3-room
Green Cross.....	99'9"	Bertie.....	1934	CCC	1,256	2-room
Woodville.....	80'0"	Bertie.....	1928	NCFS	1,358	2-room
Jackson.....	86'6"	Northampton.....	1934	CCC	1,335	1-room
Thomas.....	93'0"	Hertford.....	1929	NCFS	1,467	2-room
Liles.....	79'6"	Halifax.....	1935	CCC	1,087	2-room
Scotland Neck.....	99'9"	Halifax.....	1934	CCC	1,553	2-room
Swift Creek.....	79'6"	Nash.....	1935	CCC	1,221	2-room
Warren.....	80'0"	Warren.....	1932	NCFS	1,079	2-room
Plymouth.....	99'9"	Washington.....	1936	CCC	1,512	
Foreman.....	99'9"	Martin.....	1936	CCC	1,344	4-room
Camp.....	102'0"	Hertford.....	1928	Private & CCC	1,200	
Hassell.....	99'9"	Martin.....	1936	CCC	1,595	3-room
East Lake.....	120'0"	Dare.....	1928	CCC	3,018	2-room
Palestine.....	60'0"	Cumberland.....	1927	NCFS	1,152	2-room
Cedar Creek.....	99'9"	Cumberland.....	1934	CCC	2,121	1-room
Cameron Hill.....	100'0"	Harnett.....	1938	CCC	2,077	1-room
Mamers.....	72'9"	Harnett.....	1934	CCC	991	2-room
Chadbourne.....	100'0"	Columbus.....	1930	NCFS	1,100	4-room
Nakina.....	100'0"	Columbus.....	1931	NCFS	1,150	
Waccamaw.....	100'0"	Columbus.....	1929	Private	1,200	4-room

TABLE C—Continued

Name	Height	County	Date Erected	Built by	Initial Cost	Towerman's House
Proctorville.....	99'9"	Robeson.....	1934	CCC	1,281	2-room
Pembroke.....	85'0"	Robeson.....	1928	NCFS	1,396	2-room
Parkton.....	99'9"	Robeson.....	1929	NCFS	1,591	2-room
East Robeson.....	99'9"	Robeson.....	1935	CCC	1,715	2-room
Orton.....	80'0"	Brunswick.....	1931	Private & NCFS	1,100	
Shallotte.....	99'9"	Brunswick.....	1935	CCC	2,123	4-room
Bolivia.....	99'9"	Brunswick.....	1929	NCFS	1,556	4-room
Maco.....	99'9"	Brunswick.....	1936	CCC	1,608	4-room
Jones Lake.....	99'9"	Bladen.....	1935	CCC	1,532	4-room
Rose Hill.....	99'9"	Duplin.....	1936	CCC	1,630	4-room
Newkirk.....	99'9"	Sampson.....	1936	CCC	1,424	4-room
Chinquapin.....	99'9"	Pender.....	1936	CCC	1,824	4-room
Bannerman.....	120'0"	Pender.....	1927	CCC	2,534	
Ward's Corner.....	120'0"	Pender.....	1936	CCC	2,000	4-room
Pink Hill.....	99'9"	Duplin.....	1937	CCC	1,811	
Clinton.....	120'0"	Sampson.....	1937	CCC	3,234	4-room
Williams Lake.....	120'0"	Sampson.....	1937	CCC	2,094	4-room
Knightdale.....	120'0"	Wake.....	1938	CCC	2,781	4-room
Hoffman.....	99'9"	Richmond.....	1937	Resettlement Admin	1,500	3-room
Hamlet.....	99'9"	Richmond.....	1937	Reset. Admin.	1,500	3-room
Stumpy Point.....	120'0"	Dare.....	1939	CCC	2,597	
Scuppernong.....	120'0"	Washington.....	1939	CCC	2,728	
Glover.....	100'0"	Nash.....	1940	CCC	1,946	
Riegel.....	120'0"	Brunswick.....	1938	CCC	2,788	4-room
Lagoon.....	100'0"	Bladen.....	1937	Reset. Admin.	1,521	
Rich Mountain.....	40'4"	Transylvania.....	1939	CCC	1,851	House on Tower
Hawshaw Mountain.....	45'9"	Avery.....	1934	CCC	1,041	1-room
Big Duggar.....	60'0"	Watauga.....	1941	NCFS & CCC	1,841	2-room
Rocky Point.....	120'0"	Pender.....	1941	CCC	3,031	
Giddenville.....	120'0"	Sampson.....	1942	CCC	2,840	3-room
Pittsboro.....	100'0"	Chatham.....	1940	CCC	1,830	
Huntersville Mtn.....	52'0"	McDowell.....	1940	CCC	1,724	2-room
Apex.....	100'0"	Wake.....	1940	CCC	2,246	
Clarkton.....	120'0"	Bladen.....	1941	CCC	2,246	
Chesapeake.....	120'0"	Gates.....	1942	Private	3,317	
Phillips Knob.....	45'9"	Yancey.....	1943	NCFS	597	1-room
Ansonville.....	99'9"	Anson.....	1944	NCFS	2,160	
Lilesville.....	99'9"	Anson.....	1943	NCFS	1,965	
Harrisville.....	99'9"	Montgomery.....	1944	NCFS	2,328	
Winfall.....	99'9"	Perquimans.....	1944	NCFS & USFS	2,625	
South Mills.....	99'9"	Pasquotank.....	1944	NCFS & USFS	2,625	
Eagle Springs.....	120'0"	Moore.....	1944	NCFS & CCC	2,507	
Columbus.....	120'0"	Tyrrell.....	1946	NCFS	4,460	
Scranton.....	120'0"	Hyde.....	1946	NCFS	4,419	
*Boone.....	67'0"	Watauga.....	1947	NCFS	2,127	
*Jefferson.....	35'0"	Ashe.....	1947	NCFS	975	
*Gordon Mountain.....	99'9"	Anson.....	1947	NCFS	3,534	
*Siler City.....	99'9"	Chatham.....	1947	NCFS & CCC	1,630	
*Grantsboro.....	120'0"	Pamlico.....	1947	NCFS	5,352	
*Lowes Grove.....	120'0"	Durham.....	1947	NCFS	2,343	
*Hillsboro.....	80'0"	Orange.....	1947	NCFS	2,934	
*Rosemeade.....	120'0"	Bertie.....	1948	NCFS	5,162	
*Wenona.....	99'9"	Washington.....	1948	NCFS	3,904	

TOTAL TOWERS—110

TOTAL HOUSES—71

\*Towers erected this biennium.

NOTE: Two more towers purchased during biennium to be erected this Fiscal Year.

In addition to the State-owned and operated towers, listed in Table C, forty-two Federally-owned lookout towers of the U. S. Forest Service and U.S. National Park Service report forest fires cooperatively with our organization.

*State Forest Service Communications:* The fire-detection and reporting system of the State Forest Service at the close of the biennium included the following mileage of State-owned telephone lines. These lines connect lookout towers with Forest Wardens and other towers, or with commercial telephone lines, or both. Practically all our telephone lines are on poles or creosoted pine, and practically all are metallic circuit (2 wire) line.

<i>Forest Service District</i>	<i>Total Mileage of Line</i>
No. 1—Asheville .....	89.5
No. 2—Lenoir .....	104.9
No. 3—Rockingham .....	86.9
No. 4—New Bern .....	17.5
No. 5—Rocky Mount .....	16.8
No. 6—Fayetteville .....	95.9
No. 7—Elizabeth City .....	28.
No. 8—Whiteville .....	353.
No. 9—Sylva .....	50.9
Total .....	843.2

It will be noted that the total is about fifty-eight miles less than at the same period two years ago. This reduction represents dismantling of several lines no longer needed, due principally to new commercial telephone facilities made available.

The State Forest Service acquired 28 radio sets during the biennium. These are high frequency FM, two-way sets and their use has been authorized by the Federal Communications Commission for forest fire control purposes only. Some progress was made during the period in the installation of these radios. Their installation will represent a highly important step forward in our communications work. The above 28 sets will give only a start in our radio program and we hope to make further progress in this highly important field during the next biennium. Present plans call for the use of radio for communication between County Forest Wardens and lookout towers largely, since we do not anticipate much use of more powerful equipment on a District or State-wide basis.

*Other Permanent Improvements:* The State Forest Service operated at the end of the biennium 110 lookout towers. As indicated in Table C, nine of them were erected during the biennium. An additional seven were purchased and are to be erected during the next biennium, three of them being replacements of wood towers erected by the Civilian Conservation Corp.



During the period covered by this report a suitable warehouse was constructed at Asheville and oil houses and other improvements were made at District Warehouses at Asheville, New Bern, Whiteville and Sylva. Plans were made during the biennium for the construction of the much needed Central Warehouse at Clayton.

The Department's long-time plan for adequate State-wide forest fire control on all non-Federal forest lands calls for a system of approximately 130 State-owned Lookout Towers and possibly 1,000 miles of telephone line, together with a complete network of radio communication. As has been consistently done in the past, plans for lookout towers, telephone lines and radio will be integrated and coordinated with those of such Federal agencies as the U. S. Forest Service and the National Park Service which conduct similar programs in protection of Federal forest lands within the State.

**TABLE D**  
**LIST OF PRINCIPAL ITEMS OF FIRE-FIGHTING EQUIPMENT**

Items of Equipment	Purchased During Biennium	Total on Hand Date of This Report
Automobiles.....	25	31
Trucks, Pickup.....	80	102
Stake Trucks, 1½ Ton.....	2	10
Truck-Trailer Units, 10-Ton.....	3	14
Tractors, Crawler.....	6	19
Road Machines.....		2
Motor Grader.....	1	1
Fire Line Plows.....	8	24
Pumpers, Power.....	2	10
Pumps, Knapsack.....	543	2,914
Paint Spray Outfits.....	2	4
Bullgraders.....		1
Winches, Crawler Tractor.....	4	11
Radio Sets, FM, 2-Way.....	28	28

*Fire Fighting Equipment:* The acquisition of fire fighting equipment during the biennium was considerably improved over the preceding period. We were able to replace substantially our fleet of old cars and pickup trucks and purchase more Crawler Tractors, plows, and hauling units as the above Table D will indicate. A much needed motor grader was purchased and 28 radio sets of high frequency, FM, two-way type were also purchased.

*Accomplishments:* The Progress Charts in this and the preceding Biennium Reports show the highly gratifying increase in the direct State appropriation for Fire Control from about \$169,249 as of June 30, 1946, to about \$324,800 annually as of June 30, 1948. This reflects confidence of the people of the State and their legislature in the soundness and importance of the Forest Fire Control program. Such increases in the key State appropriation have permitted and actually caused accompanying increases in County and Federal appropriations.

As pointed out in the last report, improved conditions with respect to equipment have made it possible to expand pre-suppression fire line plowing program during the period from the limited start in one district to a large part of the Coastal Plain section of the State. Reference is, of course, to the long planned program covering such forest lands in protected counties whose owners are willing to pay for this plowing on a cost basis.

As indicated by the Progress Chart and several Tables, there was a progressive increase in protected area and appropriations, important permanent improvements were constructed and important and improved equipment items added to the list of fire fighting equipment.

*Forest Fire Statistics:* In analyzing the fire statistics given in Table E it is necessary to bear in mind the following factors:

1. Available funds to do the job, as against the funds known to be necessary for an adequate job.
2. Climatic factors, such as the distribution and amount of rainfall; and human factors, such as the distribution and intensity of logging operations, pulpwood, and other forest protection operations, have continuous bearing upon forest fire control. Such variable factors can only be estimated in the light of past experience and without an adequate organization it must be realized that the results obtained will vary more widely than would be the case if adequate funds were available.

The fire seasons for the fiscal years 1944-45 and 1945-46 were about normal. The Spring of 1947 was fairly normal until the months of May and June when it became abnormally dry with low ground water levels and the usual strong and dry winds that accompany such conditions. The same situation occurred in the Spring of 1948 with fire conditions becoming serious in May and June over the entire State. Serious fires occurred in the Mountains and on the Coastal Plains during this period and they lasted through the biennium.

Table E shows graphically the loss sustained from year to year from forest fires, even on areas given the existing measure of State Protection. The Department feels that adequate protection, as indicated in the footnote to the foregoing Progress Chart would materially reduce this annual loss.

*Conclusion:* The attainment of the goal of State-wide and adequate forest fire control is still in the future. It is encouraging to note the increased support of the Department's program during the past several years on the part of the public in general and the General Assembly, the forest products industries, and the N. C. Forestry Association.

It is becoming more evident that the citizens of the State are recognizing the fact that forest resources do constitute an important portion of the State's wealth and that the State's approximately 18,000,000 acres of forest lands largely support its third ranking industry; namely, forest products, which is exceeded in financial importance only by the textile and tobacco industries.

The Department's close cooperation with the several Federal agencies concerned in the control of fire on Federal lands has continued to be highly satisfactory.

TABLE E  
FOREST FIRE STATISTICS FOR STATE-PROTECTED AREAS  
BY FISCAL YEAR

	1944-1945	1945-1946	1946-1947	1947-1948
Area Under Protection—Acres.....	• 12,664,871	12,541,098	12,893,454	14,507,496
NUMBER FIRES BY CLASSES:				
A—Under ¼ acre.....	139	82	127	91
B—½ to 10 acres.....	970	777	1,232	862
C—11 to 100 acres.....	1,180	930	1,218	730
D—101 to 500 acres.....	402	282	329	124
TOTAL.....	2,691	2,071	2,906	1,807
CAUSES OF FIRES:				
Camper and Hunters.....	215	107	224	98
Debris Burning.....	605	599	798	549
Incendiary.....	566	413	558	290
Lighting.....	18	6	12	23
Lumbering.....	61	22	41	25
Railroads.....	107	86	120	113
Smokers.....	926	637	961	579
Miscellaneous.....	193	201	192	130
TOTAL.....	2,691	2,071	2,906	1,807
AREA BURNED—ACRES:				
Merchantable Timber.....	73,727	21,508	29,951	16,041
Reproduction.....	190,614	83,729	108,877	31,941
Open Grass Land.....	76,533	16,092	33,474	19,406
TOTAL.....	340,874	121,329	172,302	67,388
—Average Area Per Fire, Acres.....	127	59	59	37
—Per Cent of Protected Area Burned.....	2.69%	0.97%	1.34%	0.46%
DAMAGE:				
Merchantable Timber.....	\$ 233,608	\$ 64,489	\$ 89,878	\$ 47,507
Reproduction.....	249,353	111,457	147,044	53,610
Other.....	17,119	21,813	19,657	5,983
TOTAL.....	\$ 500,080	\$ 197,759	\$ 256,579	\$ 107,100
Average damage Per Fire.....	\$ 186	\$ 95	\$ 88	\$ 59
Total Fire Fighting Costs (Non-Salaried Personnel).....	14,283	5,792	8,516	6,786
Average Fire Fighting Costs Per Fire.....	\$ 9.02	\$ 2.80	\$ 2.93	\$ 3.75
LAW ENFORCEMENT:				
Number of Prosecutions.....	220	200	291	265
Number of Convictions.....	214	188	282	255
Court Costs and Fines.....	\$ 2,558	\$ 2,208	\$ 3,519	\$ 3,188



TABLE E—Continued

	1944-1945	1945-1946	1946-1947	1947-1948
RESPONSIBLE PARTIES OTHERWISE HANDLED:				
Number Parties Billed for FF Costs.....	112	108	206	189
Number Making Payment.....	103	103	179	175
Amount Received.....	\$ 593	\$ 682	\$ 1,132	\$ 1,119
FF COST BY LANDOWNERS:				
Number of Parties Billed.....	1	2	9	-----
Number Making Payment.....	1	2	9	-----
Amount Received.....	\$ 6	\$ 15	\$ 81	\$ -----
WARDEN ACTIVITIES:				
Number of Hours Worked.....	359,191	246,463	344,474	349,597
Miles Traveled.....	738,685	571,052	833,592	915,258
Number of Sawmills Visited.....	674	303	574	1,191
Number of Burning Permits Issued.....	32,978	27,756	53,074	58,701

TABLE F  
COMPARISON OF STATE-PROTECTED AREAS AND  
UNPROTECTED AREAS (BY CALENDAR YEARS)

Federal Lands Protected by Federal Agencies NOT Included	State-Protected Forest Area		Unprotected Forest Area*		Totals for State	
	1946	1947	1946	1947	1946	1947
Forest Area in Acres.....	12,771,889	13,693,626	4,143,568	3,221,831	16,915,457	16,915,457
Number of Fires Reported.....	2,265	2,668	377	324	2,642	2,992
Area Burned—Acres.....	126,630	166,745	30,725	16,756	157,355	183,501
Damage Done by Fires.....	\$ 206,464	\$ 248,420	\$ 60,274	\$ 43,121	\$ 266,738	\$ 291,541

\* Figures on fires, damage, etc., for the unprotected areas are obtained by an annual survey in such areas and are, of necessity, only estimates.

NOTE: In connection with the comparisons in the above table, it should be remembered that the State Forest Service has purposely extended its protection activities first to the areas of highest fire hazard and greatest need (the Counties in the Mountain and Coastal Plain regions). This policy will continue; consequently, it is to be expected that as these "bad fire areas" are brought under protection the per cent of area burned in the unprotected areas (as well as the total acreage burned) will decrease in relation to the same figures for the protected areas.

## FOREST MANAGEMENT

This phase of the activities of the Division of Forestry has become one of major proportions. The increased interest of farmers and other private land-owners in the value of their woodlands and the necessity of protecting their investment in growing timber has made heavy demands on the services of the Division's foresters. The many requests for assistance have been difficult to satisfy. Prices for all forest products have remained high.

There was a rapid turnover of field personnel, most of whom accepted positions in private employ at higher salaries than the state affords. This hampered the progress in the promotion of good forest management in the field. It is becoming more and more evident that forest industries see the need of technical foresters on their staffs and have been drawing on the State services for trained personnel. The Forest Management branch of the Forestry Division has been directly or indirectly responsible for the employment of a number of foresters in North Carolina by private industry.

The initiation of 111 new projects on private land covering a total of 91,300 acres with the selective marking of 10 million board feet of timber during the biennium is considered good progress when it is realized that most of this effort was the result of the work of the foresters assigned to the Raleigh Office in training new personnel and landowners. An indication of the progress which can be expected during the next biennium is the fact that in the last months of the biennium definite projects on private land have been assigned which will call for the selective marking of over 3 million board feet in two months. The goal of 20 million board feet selectively marked in the first year of the next biennium should be reached if this progress continues. A large number of continuing projects were carried over from the previous biennium. In many of these continuing projects the landowners or their agents are marking and cutting their timber selectively with periodic inspections and advice from the Division's foresters. Some of the outstanding new and continuing projects on public or semi-public land are the Gardner-Webb College, Cleveland County, 1,000 acres of woodland Montreat Association, 3,600 acres of woodland, Buncombe County; State Hospitals at Goldsboro, Morganton and Raleigh, total 4,500 acres woodland; Waynesville Watershed, 8,000 acres; Asheville Watershed, 19,000 acres. These latter two projects are being handled in cooperation with the TVA foresters.

### FORESTRY CAMP FOR FARM BOYS:

A new and highly successful endeavor was inaugurated in the summer of 1946. Through the cooperation of the Southern Pulpwood Conservation Association, the Champion Paper and Fibre Company, the N. C. Pulp Company and the Riegel Paper Company funds were provided for the conducting of a Forestry Camp for Farm Boys. Two camps were held at the State owned Singletary Lake Group Camp in Bladen County during the weeks of August 26-31, 1946, and August 25-30, 1947. A total of 96 boys selected from outstanding 4-H Club and Future Farmers of America members attended. The direction and instruction at the camp were supplied by the technical personnel of the Forestry Division assisted by members

of the Extension Service and industry. Many testimonials from the boys attending give evidence of the value of the instruction which was coupled with a good time. The total forest land represented by the boys at the camps was 8,890 acres. The predictions are that the success of these camps will make them a permanent affair.

#### TIMBER FARMS PROGRAM:

The timber farms program which is jointly sponsored by the North Carolina Forestry Association and the Southern Pine Association assisted by the State Forester, Extension Forester and a forester from the U. S. Forest Service has been continued through the biennium on a reduced scale. This was due chiefly to the necessity of reorganizing the field organization. It is felt this is an excellent means of stimulating good forestry practices and plans are under way to devote more time to this worthwhile project. During the biennium there were 7 Timber Farm Certificates awarded with the total woodland acreage of 3,133.

#### TIMBER FARMS

Name	Address	County	Acreage
Mrs. Henery K. McIntyre.....	Raleigh, N. C.....	Wake	51
F. P. Latham.....	Elhaven, N. C.....	Beaufort	1,000
Mrs. Alex Martin.....	Rocky Point, N. C.....	Pender	180
Brady M. Rogers.....	Wadesboro, N. C.....	Anson	12
Dr. O. L. Parker.....	Clinton, N. C.....	Sampson	390
Nelme Farm (T. E. Griffin).....	Wadesboro, N. C.....	Anson	650
Fred H. Whitehurst.....	New Bern, N. C.....	Craven	850

#### FEDERAL COOPERATION WITH U S. FOREST SERVICE:

In addition to the federal cooperation in the allotment of funds for fire control and seedling production, a management forester of considerable experience is assigned to the division for work with the larger commercial concerns and investment owners of forest land. This cooperative effort has produced some outstanding results.

#### TIMBER FARMS—(FORESTRY)

##### FARM FORESTRY

The 1947 General Assembly appropriated to this Department \$18,000 earmarked for Farm Forestry. Since a cooperative State-Federal program of this sort under the Federal Norris-Doxey act had been handled since 1942 on an interim basis by the North Carolina Agricultural Extension Service, the change-over to this Department was not made immediately when this money became available (on 7-1-47). Instead, suitable transfer arrangements were worked out among the State Budget Bureau, the State Forester, and the Director of the Agricultural Extension Service whereby the change-over became effective on 7-1-48. On that day, this Department took over the cooperative project with the Forest Service of the U. S.



Department of Agriculture, with a planned budget covering 6 or 7 Farm Foresters to start with. Operation of the project will, of course, be covered in the ensuing Biennial Report, the preliminary negotiations, however, took place during the period covered by this Report.

## STATE TREE NURSERIES AND FOREST PLANTING

This phase of forestry has become one of the most important ones in the South. A tremendous demand for forest tree seedlings for reforestation has taxed all the agencies throughout the south to supply small forest tree seedlings.

Although the farm cooperators continue to increase both in number and amount of trees ordered, the large landowners, chiefly the pulp companies, have taken the lead in this regard. This will be seen by consulting with the tables which are a part of this report. The raising of the seedlings in the nurseries and the planting in the field is a highly technical procedure and many problems have to be solved before the trees are actually planted. One of the chief of these is the securing of an adequate amount of tree seed and keeping at least a supply for a year or two ahead in cold storage. This has not been accomplished in North Carolina due to the necessity of keeping up with the current demand for seedlings.

The North Carolina Pulp Company of Plymouth offered free several hundred thousand seedlings purchased from the state to landowners in their purchase area and this was considered very successful. Another outstanding project was that of the Civitan Club of Gastonia which supplied 100 individuals with a total of 100,000 trees. The Club donated the money for the purchase of these trees and the Soil Conservation Service forester handled the details of the distribution in Gaston County. The advent of the tree planting machine which has a capacity of 10,000 trees daily has also stimulated the reforestation of large areas.

The interest of the furniture manufacturers in hardwood seedlings has also made it a necessity to grow more hardwood seedlings, mostly yellow poplar. The total maximum capacity of the two State nurseries described below is 15,000,000 seedlings. This production should be reached within the next year or two and then it will be necessary to purchase or secure by gift an additional nursery in Eastern North Carolina. The older plantations set out 10 to 15 years ago, many of which are now ready for thinning, have stimulated the demand.

### CLAYTON NURSERY:

This nursery consisting of 314 acres with about 28 acres of tillable land is located on U. S. Highway 70 about 1½ miles west of Clayton, N. C. The wooded area is being managed as a demonstration forest and all the old fields have been planted to forest tree seedlings. During the biennium 104,000 board feet of mature timber was cut and sold or used at the nurseries, the timber all being marked by trained foresters. Species grown

at the nursery consist mostly of the southern pines, loblolly, longleaf, shortleaf, and slash. Lesser amounts of red cedar, black locust, yellow poplar and the oaks.

An expansion program was undertaken with the increased appropriations which consisted of the reconstruction of an old building into a cone shed, constructing a grading table and much needed repairs to buildings and equipment which had depreciated during the war period.

At this nursery, technicians pioneered with the use of selective herbicides or what is commonly known as weed killer; the success of which has been outstanding and several million more trees were produced due to the reduction in weeding costs and replacement of common labor which was hard to secure. The severe winter of 1947-48 also complicated the problems at this nursery.

#### HOLMES NURSERY:

This nursery is located about 10 miles from Hendersonville on the Crab Creek road and consists of 231 acres about 15 acres of which are available for growing seedlings. The species grown are confined chiefly to white pine and yellow poplar and some black locust for the mountain region. A technical forester was put in charge in the winter of 1948 and expansion of the production should be rapid at this place.

#### PLANTING MACHINE:

This Division was one of the first State Agencies in the South to purchase and operate a tree planting machine under contract basis with private land owners. The Division supplied the machine and the operator at \$4.50 per thousand trees planted, the owner supplying the tractor and tractor operator. The average cost per acre to the landowner ran between \$7.00 and \$10.00, planting approximately 1,000 trees to the acre. This is considered cheaper than hand planting and in many cases labor was not available and the machine was the only way the job could be accomplished. Some of the outstanding cooperation with the planting machine was on private and city owned property on the Franklinton Watershed, Dr. O. L. Parker at Clinton, and H. H. Elder at Siler City. Many more requests were received than could be handled during the season. Approximately 200,000 trees were planted with the one machine; an additional machine will be purchased for the next biennium. Z. V. Pate Company of Laurel Hill purchased a machine of its own and planted approximately 350,000 forest tree seedlings on its property near Laurel Hill.

Through the cooperation of Ray T. Adams, of Washington, D. C., a number of experimental plantations were started on the banks of Currituck County in order to test the feasibility of reforesting the large area along the coast under similar conditions. This cooperator bought the trees and supplied the labor for the planting.

The A. T. Griffin Manufacturing Company of Goldsboro has also started on a long time reforestation project which bids fair to be outstanding in its section of the state. The many other examples are too numerous to mention.



## VOCATIONAL AGRICULTURE SCHOOLS:

The policy of free distribution of forest tree seedlings to Vocational Agriculture Schools for planting on school property or adjoining private land for educational and demonstrational purposes was re-established in 1947-48 planting season. Forty-nine schools took advantage of this offer and planted 160,000 tree seedlings.

## COOPERATION WITH GARDEN CLUBS OF NORTH CAROLINA:

This cooperation was continued during the biennium and consisted of advice and assistance in securing from commercial nurserymen approximately 20,000 dogwood trees for beautification of roadsides, parks and homesites, throughout the state. This greatly stimulated the recognition of the State Flower which is the dogwood and also focused attention on the preservation of the natural beauty of the state.

### DISTRIBUTION OF FOREST TREE SEEDLINGS BY SPECIES

Species	1944-45	1945-46	1946-47	1947-48
Black Locust.....	21,575	18,500	52,250	57,600
Black Walnut.....	3,400	500	3,934	1,910
Cork Oak.....	3,565		795	6,571
Loblolly Pine.....	199,100	1,248,000	2,349,350	4,815,508
Longleaf Pine.....	96,100	9,550		92,753
Red Cedar.....	16,450		36,500	5,163
Shortleaf Pine.....	12,000	187,850	402,550	456,900
Slash Pine.....		196,500	23,435	437,008
Tulip Poplar.....	11,500	1,500	17,950	25,000
White Pine.....	160,200	45,500	138,500	10,000
Miscellaneous.....			4,450	24,626
TOTALS.....	523,890	1,767,900	3,029,714	5,933,039

### DISTRIBUTION OF FOREST TREE SEEDLINGS BY CLASS OF COOPERATORS

Class of Cooperators	Biennium 1946-48		Total 1946-48	
	Number of Cooperators	Number of Trees	Number of Cooperators	Number of Trees
Farmers.....	1,245	2,767,662	5,267	13,882,487
Industries.....	29	4,408,900	127	7,438,769
Schools.....	51	200,585	379	1,531,339
State.....	15	483,975	93	849,919
Clubs & Organizations.....	26	94,050	2,534	267,453
Municipalities.....	2	9,000	16	210,724
Soil Conservation Service.....	5	777,900	9	4,689,940
U. S. Forest Service.....	2	3,900	10	1,124,540
Federal.....	3	158,000	12	239,150
Others.....	16	58,781	53	1,517,767
TOTALS.....	1,394	8,962,753	8,500	31,762,088



In addition to the above, the Tennessee Valley Authority has distributed 14,509,055 forest tree seedlings since its establishment through the planting season 1947-48. This was in the following counties, Avery, Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, Mitchell, Swain, Transylvania, Watauga and Yancey. All TVA seedlings distributed in North Carolina are through the Forestry Division's district offices with cooperation of the Agricultural Extension Service.

## BLADEN LAKES STATE FOREST

### HISTORY AND DESCRIPTION

The Bladen Lakes State Forest in Bladen County near Elizabethtown consists of 35,875 acres of land purchased by the United States Government at an average price of \$4.51 per acre. This was during the period of 1936 through 1942 under Title III of the Bankhead-Jones Farm Tenant Act. Under a cooperative and license agreement signed by the Secretary of Agriculture on June 29, 1940, and the Director of the Department of Conservation and Development on July 15, 1940, the property was turned over to the latter Department effective July 1, 1939, for administration and operation. The forestry Division has had a trained forester on the area since the fall of 1939. The agreement runs for a total of 95 years in renewable periods of 50 years, 15 years, 15 years and 15 years.

### OBJECTIVES OF MANAGEMENT

The primary objective of the management of the forest area is to build up the growing stock of timber on the over cut and previously badly burned areas, utilize all the resources of the area, including game; and demonstrate that such an area can pay its own way under sound forestry operation. The additional objectives of recreational use of the natural lakes and surrounding areas is also of high priority.

### FOREST MANAGEMENT PLAN

According to the inventory and growth study made on the Forest in the summer of 1946, the following summary is tabulated:

	Estimated bd. ft.	Standard cords
Pine .....	29,993,000	39,777
Hardwoods .....	14,199,000	21,427
	<hr/> 44,192,000	<hr/> 61,204

Estimated annual growth all species—3,500,000 bd. ft.; 2,509 cords.

Average annual cut—1,500,000 bd. ft.; 1,000 cords.

The forest management plan is now in the stage of making detailed studies of compartments and sub-compartments. This phase of the plan is dependent upon funds and on the availability of forestry students during the summer for field work. Consequently the completion of the plan will be slow of realization.

It should be observed from the above that average stand per acre is low. The timber now being cut is mostly from salvage and improvement cuttings with a large percentage of defective material from the bays. The best stands of timber are in the younger, fast growing age classes and should not be harvested at present. The bulk of the timber cut during the two-year period was over-mature, scattered and costly to operate. On account of its condition and poor logging chances, private operators were not interested in buying on a marked tree stumpage basis. This coupled with the moral responsibility of providing work for the wage earners supporting 51 persons living on the area made it necessary for the Forestry Division to do the bulk of the timber operations.

Stumpage prices for logs received after taking into account operating expenses range from \$7.50 per M bd. ft. for defective gum in the swamps to \$17.50 per M bd. ft. for pine (mostly overmature pond pine). Pulpwood stumpage ranges from \$3.00 to \$4.00 per cd. Much higher stumpage is received from poles and veneer blocks. The highest is \$41.00 per M bd. ft. for poles.

Since the fiscal year 1943-44 the receipts from the woods operations have exceeded the expenditures on the area for forest management. This balance of receipts over expenditures will be of necessity small for several years when it is considered that the area has a low stocking of desirable species. Many operations such as planting, fire control and maintenance of buildings, roads and trails are building up the capital investment and returns will not reflect in receipts immediately.

A comparison of the total expenditures and receipts for the biennium shows an excess of receipts over expenditures for forest management of \$6,306. This is considered an excellent record.

## PLANTING

The number of seedlings planted on poorly stocked and open areas on the forest was increased during the fall of 1947 and spring of 1948; 424,000 pine seedlings of several species were planted with the planting machine and hand labor. This compares favorably with the previous two year period when 148,000 seedlings were planted.

## FOREST FIRES

The forest supervisor reported 4 fires which burned only 13½ acres on the forest in the two-year period. This is considered an outstanding achievement. A new Dodge Power Wagon fully equipped with a pump, 250 gallon water tank and fire line plow was added to the fire suppression equipment and is very effective. A total of 480 miles of fire line were plowed, 3 fire telephones installed; 4 tool caches established; and 62 miles of fire line were burned.

## EQUIPMENT

The need for the replacement of worn out motor vehicle equipment and the purchase of a new tractor were fully realized and at present the equipment assigned to the forest consists of a TD-9 Tractor, Dodge Power Wagon, (2) Dodge ½ ton pickups, Chevrolet ½ ton pickup, 2 ton Chevrolet truck and a Chevrolet Log Truck.



## DEER HUNT

Organized Deer Hunts were held in the fall of 1946 and 1947. These hunts were organized on the group system with the groups supplying the dogs and handlers. Two groups were allotted areas each day of the hunts. In 1946 there were 3 days of hunting, accommodating 120 hunters. The total kill was 8 bucks and the hunters paid \$1 each for the hunting privilege. During the fall of 1947, 180 hunters took advantage of 6 days of group hunting. The fee was raised to \$5 for each hunter and the kill during this season was 8 bucks and 2 does. Those individuals killing the does were convicted and fined \$50 and costs for the violation of the game laws.

FINANCIAL REPORT  
BLADEN LAKES STATE FOREST TIMBER OPERATION  
July 1, 1946-June 30, 1948

*Expenditures*

Cost of timber sales .....	\$19,640.67
Field salaries and labor .....	13,431.58
Field expenses .....	124.02
Fire suppression and patrol .....	715.18
Equipment operation .....	596.64
Equipment repair .....	4,819.69
Supplies, services and materials .....	2,860.16
Equipment (new) .....	9,938.97
Maintenance—roads and trails .....	1,129.25
Maintenance—structural .....	1,032.53
Forest planting .....	2,899.07
Deer hunt .....	79.33
Total .....	\$57,267.09

*Receipts*

Sawlogs .....	\$48,358.42
Pulpwood .....	6,198.32
Furniture squares .....	3,371.17
Veneer bolts .....	3,823.89
Posts .....	355.23
Cross ties .....	36.30
Deer hunt .....	1,068.50
Miscellaneous .....	362.00
Total .....	\$63,573.83

STATE PARKS AND STATE RECREATIONAL AREAS

Progress and expansion have marked the State parks program this bienium. In no other two-year period has the Department, with its own resources, improved and expanded the services and maintenance of the State parks system as much as during the two years ending June 30, 1948. The major reason for this was the increased park budget provided by the Gen-



eral Assembly for the second year of this biennium. This budget enabled the Department to employ much needed operating and maintenance personnel and to purchase more maintenance and operating materials than was previously possible.

The addition of Hiwassee Lake State Park to the State park system increased the number of areas in the system to 13 and added 16 vacation cabins to the park facilities.

While operation, services and maintenance of existing State parks were all improved and expanded, comparatively little building of new public use facilities was undertaken. Only at Mount Mitchell State Park, where a public picnic ground and a public tent ground were begun during the latter part of the spring of 1948, was such work under way. These projects are being constructed with a \$50,000 Additions and Betterments item included in the State parks maintenance and operating budget for the fiscal biennium 1947-1949. None of the \$500,000 State parks permanent improvement appropriation made by the General Assembly of 1947 has yet been released for expenditure, but it is hoped that a part, at least, will be available soon so that the much needed public use facilities can be started.

The year 1946 was the 30th anniversary of the beginning of State Parks in North Carolina and a brief review of the State's progress in the establishment of a *system* of State parks during those thirty years is appropriate.

In August, 1916, actual purchase was completed of the first tract for North Carolina's first State park—Mount Mitchell. During the remainder of 1916 and 1917, additional land was acquired that brought the total acreage of Mount Mitchell to 1,224—its present area. These land purchases were made with \$20,000 appropriated by the General Assembly of 1915.

In succeeding years, other State parks were acquired mostly by gift:

<i>Name</i>	<i>Year Acquired</i>	<i>How Acquired</i>
Fort Macon State Park	1924	Gift from Federal Government
Rendezvous Mountain State Park	1926	Gift from private individuals
Morrow Mountain State Park	1935	Partly gift from private individuals and Stanly County, and partly State purchase
Hanging Rock State Park	1935	Gift from private individuals
Cape Hatteras State Park	1935	Gift from private individual
Town Creek Indian Mound	1937	Gift from private individual
Jones Lake Recreational Area	1938	Lease from Federal Government
Singletary Lake Group Camp	1938	Lease from Federal Government
Pettigrew State Park	1939	Lease (later changed to deed) from Federal Government
Crabtree Creek State Park	1943	Gift from Federal Government
Cliffs of the Neuse State Park	1945	Gift from private individuals
Hiwassee Lake State Park	1948	Lease from Tennessee Valley Authority

Since 1916, the number of State parks has grown from one to 13 and the acreage from 1,224 to 36,200. Most of this growth has taken place during the period 1934-1948, when ten parks and 34,334 acres were added to the State parks system. As the above list shows, most of the land in State parks was acquired by gift or lease without cost to the State. In the past 32 years, the State has spent less than \$60,000 for State park land. Naturally, lack of funds for systematic land acquisition has kept the Department from filling in the gaps in the State parks system; has hampered the orderly, systematic building of a State parks system; and has delayed the establishment of the sort of system the Department believes North Carolina should have.

For the eighteen-year period 1916-1934, only \$30,148.46 was appropriated for State parks, an average of less than \$1,700 a year—not enough to protect properly the three parks then owned by the State.

As with other phases of the State parks program, the greatest development of the parks has taken place since 1934. Prior to that date, neither the funds nor the organization was available for developing State parks. From 1934 until early in 1942, construction of public use facilities was undertaken in five State parks by the Civilian Conservation Corps under the joint supervision of the Department and the National Park Service. In three others, such work was done by other Federal agencies including Civil Works Administration, Works Progress Administration, Farm Security Administration and the Soil Conservation Service.

The present development of the North Carolina State Parks, conservatively valued at two and a quarter million dollars, exclusive of land and natural resources, has, therefore, been done almost entirely by these Federal agencies. From 1934-1942, the State made available for State park development only \$39,428.64; so, had it not been for these Federal agencies, development of the North Carolina State Parks would now be little better than it was when Mount Mitchell State Park was established 32 years ago. Fortunately, the future is much brighter. Recognizing the enormous public demand for State park development, the General Assembly of 1947 appropriated \$500,000 for permanent improvements in the parks. This will complete about 20% of the needed State parks improvements, and it is hoped that succeeding General Assemblies will make available the remainder.

Progress in operation and maintenance of State parks for public use has been greatest since 1934. Prior to August, 1935, when the first superintendent of State Parks was employed, administration, operation and maintenance of parks was handled directly by the State Forester along with his many other duties. Since then, the State parks' staff in the Division of Forestry and Parks has increased to the point of being nearly adequate for carrying out the duties and responsibilities placed on it.

Since 1934, public use of the State parks has grown from a few thousands to almost three-quarters of a million annually, but, more significantly, it has grown in scope and variety. In 1934, most of those who went to the State parks were merely *park visitors*; today, most of those who go to them are *park users*. They use the parks for picnicking, hiking, nature study, swimming, fishing, boating, camping, enjoying natural beauty and



restful relaxation. Public response to and appreciation of State parks has been very gratifying. Public desire for State park facilities has always been far ahead of the facilities actually available, and this desire has crystalized into definite demands for more adequate development of existing parks and for new ones—demands which sooner or later will be met.

The Department may justly review with satisfaction its progress in the State park program since 1934, but it fully realizes that achievement of its ultimate goal of establishing, developing and operating a system that will adequately serve all the people of the State is a great task and challenge.

### PERSONNEL

A number of changes in State Parks employees occurred during the report biennium. These changes were as follows:

Name	Title	Remarks
Harold G. Bolick	Landscape Engineer, State Office	Resigned Nov. 15, 1947
Bert A. Heidelbach, Jr.	Senior Landscape Engineer, State Office	Employed April 5, 1948 To replace Harold G. Bolick
Miss Hattie Barnes	Senior Stenographer-Clerk, State Office	Resigned May 17, 1947
Mrs. Carrie M. Hughey	Senior General Clerk, State Office	Employed May 19, 1947 To replace Miss Hattie Barnes Resigned May 25, 1948
Lindsey B. Hopkins	Senior Engineer, State Office	Employed July 1, 1947 Resigned Sept. 15, 1947
Thomas L. Nooe	Principal Engineer, State Office	Employed May 1, 1948 To replace Lindsey B. Hopkins
Mrs. I. H. Hinton	Senior Stenographer-Clerk, State Office	Employed December 1, 1947
George H. Sutton	Junior Park Ranger, Cliffs of the Neuse State Park	Employed August 1, 1947
Raymond M. Sisk	Park Superintendent, Crabtree Creek State Park	Promoted from Junior Park Ranger at Cliffs of the Neuse State Park Nov. 1, 1947 Resigned Nov. 19, 1946
Thomas E. Slater	Junior Park Warden, Crabtree Creek State Park	Employed Dec. 26, 1946 To replace Thomas E. Slater Resigned June 2, 1947
Howard G. Booth	Junior Park Warden, Crabtree Creek State Park	Resigned July 11, 1947
John W. King	Junior Park Warden, Crabtree Creek State Park	Resigned August 31, 1947
J. W. Kistler	Park Superintendent, Crabtree Creek State Park	Employed Sept. 19, 1947 To replace Howard G. Booth Resigned Oct. 31, 1947
Waylon W. Ferrell	Junior Park Warden, Crabtree Creek State Park	Employed Oct. 27, 1947 To replace John W. King
Clarence H. Britt	Junior Park Warden, Crabtree Creek State Park	Employed Nov. 15, 1947 To replace Waylon W. Ferrell
James F. Ellis	Junior Park Warden, Crabtree Creek State Park	Employed Nov. 8, 1947
George D. Sanders	Junior Park Warden, Fort Macon State Park	Employed Nov. 8, 1947
Jack H. Skinner	Park Superintendent, Hiwassee Lake State Park	Employed Jan. 1, 1948
Roy L. Patterson	Junior Park Warden, Hiwassee Lake State Park	Employed January 15, 1948
Emory C. Suit	Senior Park Ranger, Hiwassee Lake State Park	Employed February 14, 1948
Guss Patterson	Junior Park Warden, Hiwassee Lake State Park	Employed February 16, 1948
Charles C. Wood	Water Plant Operator, Hiwassee Lake State Park	



Name	Title	Remarks
Mrs. Beulah H. Franks .....	Junior Stenographer-Clerk Hiwassee Lake State Park	Employed February 18, 1948
William G. Wilder .....	Park Superintendent, Morrow Mountain State Park	Employed March 16, 1948
Vernie B. Murphy .....	Junior Park Warden, Mount Mitchell State Park	Employed Sept. 25, 1947
Dennis H. Phelps .....	Senior Park Warden, Pettigrew State Park	Employed February 1, 1948
Sam Parker .....	Junior Park Warden, Bladen Lakes State Forest	Employed November 1, 1947
Thomas C. Ellis .....	Senior Park Warden, Bladen Lakes State Forest	Transferred from Forest Fire Control to State Parks August 1, 1946
Clarine Brisson .....	Junior Stenographer-Clerk Bladen Lakes State Forest	Transferred from State Park to Forest Management August 1, 1946

Most of the resignations occurred because employees secured positions paying more money than the Department could offer. State park salary schedules during this biennium have been generally below those offered elsewhere, and this contributed greatly to employee turnover. This factor also caused vacant positions to go unfilled for long periods.

Appreciation is due to the State park employees, both in the central office and at the various parks, who worked continuously during the biennium. Most of them worked long hours overtime and effectively discharged the many duties connected with State park operation, maintenance and administration.

#### PRESENT STATE PARKS:

*Cape Hatteras State Park:* Located in Dare County, near Buxton, Cape Hatteras State Park has an area of 1200 acres, includes Cape Hatteras itself and adjoins the famous Cape Hatteras Lighthouse. This park was established to preserve the outstanding sea coast scenery and to provide opportunity for public use of the ocean.

For the past several years, Cape Hatteras State Park has been in inactive status, as it was planned to turn it over to the Federal government as a part of the Cape Hatteras National Seashore. Because of this, no State funds were used in operating or maintaining the park during this biennium. The possibility of establishing the National Seashore now seems remote, so plans are being made to return Cape Hatteras to active State park status. Until more funds are provided, Cape Hatteras will be supervised on a part-time basis by a combination Forest Warden-Park Warden.

For the past two years, the vacation cottages at Cape Hatteras have been operated by Mrs. Maud White of Buxton, under a concessionaire agreement. When the park is fully returned to active status, these cabins will be operated by the Department in accordance with good State park operating policy.

The development program proposed for Cape Hatteras State Park shows the need for the following improvements to make the park really serviceable for public use:

*Maintenance and Service Center*—Including ranger's residence, garage, tool and work shop; *Roads; Parking Areas; Dormitory Building*—To provide simple accommodations for sports fishermen; *Public Camp Grounds*—Including outdoor fireplaces, central wash house and other necessities for tent camping; *Overnight and Vacation Cabins*—For vacation use; *Nature Study Facilities*—Including a museum, trails and trailside exhibits.

*Cliffs of the Neuse State Park*: This 320 acre State park is on the Neuse River in Wayne County, 17 miles southeast of Goldsboro. It includes the interesting 90-foot high cliffs on the Neuse river and is unusual botanically. A feature of the park is the galax growth on some of the north slopes. Though still undeveloped, this park has received good attendance and bids fair to be heavily patronized when public use facilities are developed. At present, picnicking, sightseeing, hiking and nature study are the only uses provided for. A summer naturalist was employed in June, 1948, to assist in naturalist programs.

During this biennium, a boundary survey of the park was completed, a temporary picnic area was built, some improvements made to the park road, and some of the old farm buildings on the park have been repaired for temporary use as work shops, storage buildings and garages.

The 1947 permanent improvement appropriation for this park is \$57,000 and when made available for expenditure, this fund will be used to construct the following public use facilities:

*Entrance Road; Parking Areas; Picnicking*—Picnic grounds, including tables and benches, outdoor fireplaces, picnic shelters, water and toilet facilities; *Hiking*—System of foot trails; *Nature Study*—System of nature trails, natural history museum, trailside exhibits; *Maintenance and Service Center*—Ranger's residence, garages, tool and work shops.

To provide reasonably adequate State park facilities, the following improvements are needed in addition to those listed above:

*Camping*—Camp grounds for tent and overnight camping with outdoor fireplaces and central washhouse; *Land Acquisition*—200-300 acres of land; *Recreation Lodge*—A building including park headquarters and a large room for meetings, lectures and other gatherings; *Swimming*—Bathhouse and swimming pool.

*Crabtree Creek State Park*: Located on Highway 70A in Wake County, midway between Raleigh and Durham, Crabtree Creek State Park is ideally situated to provide outdoor recreation and vacation use to the population of Wake, Durham and adjacent counties. This 5,120 acre park includes Crabtree and Sycamore creeks and is unusually scenic for the section of the State in which it is located.

The major public use features now available include four complete group camps—three for white and one for negro use—with accommodations for 341 persons. These group camps were heavily used in the summer camping seasons of 1946 and 1947 by various youth organizations. During the



two camping seasons, the camps were used for 100 camping weeks. Among the organizations which conducted organized camping programs at Crabtree Creek were:

Alamance County Girl Scouts, Burlington  
 Camp Leaders Training Camp, Raleigh  
 Carolina Conference of Seventh Day Adventists, Charlotte  
 Children's Bible Mission, Raleigh  
 Conrad Memorial Baptist Church, High Point  
 East Carolina Council, Boy Scouts, Wilson  
 First Baptist Church, Durham  
 Glen Raven Methodist Church, Burlington  
 Granville Presbytery Pioneers, Kenly  
 Mt. Zion W.M.U., Durham  
 Occoneechee Council, BSA, Raleigh  
 Raleigh Division of W.M.U., Durham  
 Raleigh and Wake County Girl Scouts, Raleigh  
 Rocky Mount Girl Scouts, Rocky Mount  
 Southern Convention of Congregational-Christian Churches, Elon College  
 St. John's Baptist Church, Charlotte  
 Wake County 4-H Clubs, Raleigh  
 Y. M. C. A., Durham  
 Y. M. C. A., Rocky Mount  
 Alamance Co. Girl Scouts, Burlington (negro)  
 District 4-H Club Group, A. & T. College, Greensboro (negro)  
 Harriett Tubman Branch, Y.W.C.A., Durham (negro)  
 High Point Girl Scouts, High Point (negro)  
 Occoneechee Council, BSA, Raleigh (negro)  
 Raleigh-Wake Co. Girl Scouts, Raleigh (negro)  
 Unit of Work with Colored People, Charlotte (negro)  
 Wildlife Conservation Camp, 4-H Clubs, Greensboro (negro)

The group camps were also much in demand during the fall and spring months by various youth, religious and civic organizations for recreational and educational purposes.

Individuals and family groups had little opportunity to use Crabtree Creek State Park because practically no facilities are available for day use or vacation use. Only a very small temporary picnic area, a small building for indoor picnics and foot trails were available for such use.

During the war years, maintenance of the park was perforce neglected, but in 1945 a comprehensive maintenance program was begun. This has been continued during the past two years and extensive repairs were made to the group camps, temporary service buildings, water and sewer systems and other utilities, with the result that the park is now in better state of maintenance than when it was received from the Federal government in 1943. Much maintenance has yet to be done, however, to put the park in top condition.

Of the much needed recreational facilities not now available, the following will be constructed with the 1947, \$94,000 permanent improvement fund appropriated for this park:



*Picnicking*—Construction of part of the tables and benches, outdoor fire-places, picnic shelters and water and sanitary facilities for one picnic area for white use and one picnic area for negro use; *Camping*—Construction of tables and benches, camp sites and utilities required for a well equipped tent and trailer camp ground; *Maintenance and Service Center*—Construction of ranger's residence, employees' barracks, incinerator and water and sewer systems; *Roads*—Construction of a portion of the park road system.

The above provide only a part of the public use facilities needed. In addition, the following are needed to provide reasonable service to the using public:

*Picnicking*—Construction of additional picnicking facilities needed to complete the two picnic areas described above; *Swimming*—Swimming pools and bathhouses (one for white and one for negro use) together with water and sewer systems and other necessary utilities; *Park Roads*—Construction of additional access roads and relocation of existing roads; *Parking Areas*—Construction of parking areas to serve various public use facilities; *Power Line; Maintenance and Service Center*—Construction of maintenance and service buildings not provided for in the 1947 permanent improvement appropriation; *Vacationing*—20 small housekeeping cabins; *Recreation Lodge*—Building, including restaurant, park headquarters, and rooms for meetings, lectures and other gatherings; *Hiking*—System of marked foot trails; *Nature Study*—Nature trails, natural history museum, trailside exhibits; *Riding*—Stable and bridle trails.

*Fort Macon State Park*: Located on Bogue Banks in Carteret County, Fort Macon State Park includes two miles of ocean beach and historic old Fort Macon which has served in every war since it was built in 1835.

From Pearl Harbor until late in 1946, Fort Macon State Park was under lease to the War Department. In October, 1946, negotiations for its return to the Department were completed and the park, except for some 62½ acres sub-leased to the Marine Corps, was returned to active State park status. Under the terms of the final return agreement, the War Department paid the Department \$11,450 for damage to the Fort and park and turned over certain equipment to it.

The land leased to the Marine Corps includes the bathhouse and beach development. Since these are the only public recreational facilities available at this park, the Department has requested the Marine Corps to return this area to Department jurisdiction prior to June 30, 1950, when the lease expires. It now appears that this will be done in time to put the bathhouse and other facilities in shape for use in the summer of 1949.

In 1947, the number of visitors to the park exceeded those of any pre-war year. Most of these visited Fort Macon, the park's major attraction, and guide service through the Fort was provided.

During the biennium, considerable restoration and clean up work was completed at the fort and in the park generally. The fort was stripped of various inappropriate additions and fixtures installed by the Army and partially restored to its pre-war condition. There was, of course, a certain

amount of damage that could not be repaired—the huge original dutch oven, for example, was torn down by the Army and it is impossible to replace it in its original condition. The entire park area has been thoroughly cleaned of debris, temporary buildings and is now in good condition.

In common with North Carolina's other State parks, Fort Macon does not contain the recreational facilities necessary for public recreational use. Also, its present area is too small to accommodate full recreational and vacation use and the park area should be increased. Of the required additional improvements, the following will be built with the \$30,000, 1947 permanent improvement fund for this park when the fund is made available for expenditure:

*Picnicking*—Some of the tables and benches, outdoor fireplaces, picnic shelters and utilities necessary for a well developed picnic area; *Park Roads and Parking Areas*—paving a portion of the present park road system and enlargement and paving of present parking areas; *Camping*—Tent and trailer sites, tables and benches, central washhouse and other conveniences for simple camping.

Besides the above, which only begin to meet public recreation needs, the following improvements are required for reasonably adequate service to the public:

*Swimming*—Enlargement of present bathhouse and improvements to existing bathing facilities; *Parking Areas*—Construction of additional parking space; *Historical* — Installation of historical museum in Fort Macon; *Picnicking*—Construction of picnicking facilities not included in 1947 permanent improvements fund; *Camping*—Dormitory building for sports fishermen; *Land*—Acquisition of additional land; *Boating and Fishing*—Boat pier; *Vacationing*—20 small housekeeping cabins; *Maintenance and Service Center*—Superintendent's and rangers' quarters, garages, work shops, and equipment and storage buildings; *Roads*—Construction of park roads to serve various use areas; *Power Line*; *Nature Study and Hiking*—Trail system, small natural history museum and trailside museums.

*Hanging Rock State Park*: Hanging Rock State Park lies in the Sauratown Mountains of Stokes County and is four miles northeast of Danbury and 30 miles north of Winston-Salem. Within its area of 3,685 acres are rugged mountain country, including Hanging Rock and Moores Knob; several streams and waterfalls, interesting geological formations, including the rare flexible sandstone; and a profusion of laurel and rhododendron. Within easy driving distance of Greensboro, Winston-Salem, High Point and the other cities and towns of the populous upper central Piedmont, Hanging Rock State Park provides interesting and wholesome recreation for tens of thousands of park users each summer and could serve many thousands more if it was better developed.

The major recreation facilities now available are:

*Swimming*—Bathhouse and lake with sand beach and protected water area; *Picnicking*—Picnic area equipped with fireplaces, tables and benches, shelter and barbecue pit; *Hiking*—Partially completed trail system; *Fish-*



ing—Bass and panfish in lake; *Boating*—Fourteen rowboats were provided for public use in June, 1948; *Camping*—Limited tent camping permitted; *Group Camp*—Temporary and somewhat crude facilities for group camping by organized groups are provided in the old CCC camp on leased land adjacent to park; *Refreshment Stands*—Candies, cold drinks and other supplies are available at two refreshment stands.

Use of Hanging Rock State Park was greater this biennium than in any previous two-year period in its history. Thousands of persons used it for swimming, picnicking, fishing, boating, hiking, camping, sightseeing and nature study, and all of the present recreational facilities were taxed beyond their capacity and proved entirely inadequate to meet public demand. The following youth organizations used the old CCC camp buildings for organized group camping during the biennium:

Caswell County 4-H Club, Yanceyville  
 General Greene Council, BSA, Greensboro  
 Guilford County 4-H Clubs, Greensboro  
 Lumberton High School (football squad), Lumberton  
 Friends Youth Fellowship of N. C.  
 Stokes County 4-H Clubs, Danbury  
 Surry County 4-H Clubs, Dobson  
 Yadkin and Rockingham Counties, 4-H Clubs, Yadkinville  
 and Wentworth

The maintenance program began in October, 1945, has been continued during the past two years and the various buildings and improvements in the park are now in very good condition. The Highway Commission has begun the relocation and paving of the county road now serving the park and this work is nearing completion. This improvement will most certainly be appreciated by park users who have had to travel over roads thick with dust or deep in mud to reach the park.

Much needs to be done to provide at Hanging Rock State Park those public use facilities needed for reasonably adequate public use. The following essential improvements will be constructed within the \$93,000 allotted to this park from the 1947 permanent improvement fund:

*Land Acquisition*—Purchase of additional land necessary for development and protection; *Parking Areas*—Paving of present parking areas; *Recreation Lodge*—Completion of recreation lodge begun by Civilian Conservation Corps; *Camping*—The major facilities required for tent and trailer camping including utilities and central washhouse; *Boating*—Boathouse and pier; *Maintenance and Service Center*—Rangers' residences, garage, work shops; *Group Camping*—Nucleus of an organized camp.

These improvements constitute only a fair beginning toward development of Hanging Rock State Park for fuller public service and the following facilities are also essential:

*Roads*—Completion of entrance road and construction of access roads; *Group Camping*—Construction of additional facilities required for a complete camp for organized camping; *Parking Areas*; *Vacationing*—30 small



housekeeping cabins; *Maintenance and Service Center*—Additional maintenance and service buildings not included in 1947 funds; *Power Line*; *Telephone Line*; *Camping*—Construction of additional facilities required to complete tent camp ground; *Picnicking*—Enlargement of present picnic area and development of additional picnic area; *Hiking*—Completion of foot trails; *Nature Study*—Small museum, nature trails, trailside shelters; *Riding*—Stable and bridle trails.

*Jones Lake Recreational Area*: Jones Lake Recreational Area is operated exclusively for negro use and is within the boundaries of Bladen Lake State Forest. It includes state-owned Jones Lake, a natural lake of 230 acres, and about 1,000 acres of typical coastal plain woodland. The major facilities now available include temporary and inadequate facilities for picnicking, a well equipped bathhouse and a beach for swimming, a refreshment stand, boats, and fishing in Jones Lake.

Attendance during this biennium has been somewhat less than during previous bienniums but this recreational area has been much used by the negroes of the State for day outings. Use by Sunday Schools and other groups is frequent. Though there are no facilities for organized camping at Jones Lake, temporary arrangements were made in the summers of 1947 and 1948 for the Cape Fear Area Council to hold a two weeks' camp for its negro scouts. This agency provided its own housing in the form of tents and was the only agency able to do so.

Maintenance work has been accomplished on all the buildings and a part of the utilities at this area and much of the neglect during war years has been overcome. Some maintenance still needs to be done to bring the area up to a good state of repair.

At Jones Lake, as elsewhere in the State park system, recreational facilities available are inadequate to meet public demand. Of the additional improvements needed, the following will be built with the \$30,000 allotted to this area from the 1947 permanent improvement appropriation:

*Swimming and Boating*—Piers and boats; *Roads and Parking Areas*—Enlargement, regrading and paving of parking areas and roads; *Picnicking*—Partial reconstruction of picnic area; *Camping*—Construction of the nucleus of a tent and trailer camp ground.

To bring available facilities more nearly up to public service requirements, the following additional construction must be undertaken:

*Group Camp*—Complete camp for organized camping; *Picnicking*—Complete that part of reconstruction of picnic area not provided for in 1947 funds; *Roads*—Construction and paving of necessary access roads; *Maintenance and Service Center*—Rangers' quarters, garage and work shop; *Swimming*—Increase size of bathhouse; *Vacationing*—20 inexpensive housekeeping cabins for low cost vacations; *Camping*—Remainder of construction necessary for complete tent and trailer camp grounds; *Hiking and Nature Study*—Foot trail system, small museum and trailside exhibits.

*Morrow Mountain State Park*: Morrow Mountain State Park is on the banks of the Pee Dee River in Stanly County, seven miles northeast of Albemarle. Located in the Uwharrie Mountains, its decidedly mountainous

appearance, panoramic views and interesting forest growths make it one of the most scenic places in the entire Piedmont. It is an excellent example of a State park established to protect outstanding scenic values and provide outdoor recreation and vacation facilities for the public.

The major facilities now available include:

*Swimming*—Modern bathhouse and swimming pool; *Picnicking*—Two picnic areas equipped with tables and benches, fireplaces, picnic shelter and toilet facilities; *Hiking*—Partially completed foot trail system; *Recreation Lodge*—Lodge with restaurant and large room for lectures, meetings and other gatherings; *Refreshment Stands*—Candies, cold drinks and other supplies are available at two refreshment stands; *Camping*—Limited tent camping permitted; *Nature Study*—Foot trails and, in summer months, naturalist program; *Group Camping*—Temporary arrangements were made for Boy Scouts and Girl Scouts to carry on camping programs in their own tents. The only facilities the park was able to furnish were camping space and a temporary water supply.

At Morrow Mountain, as at the other State parks where there were some public use facilities, public use during this biennium was the greatest the park has ever experienced. Every county in the lower central Piedmont and dozens of cities and towns were represented among the park users. The attendance record of almost 12,000 persons on a single Sunday in June illustrates the heavy use this park receives. The picnic areas, bathhouse and pool were taxed far beyond capacity almost every week-end. The lodge restaurant, which continued to be operated under concessionaire agreement by Tucker Brothers of Albemarle, also received good use.

The large scale maintenance program begun in the fall of 1945 has been continued during this biennium and the park and the buildings in it are now in good condition.

Development at Morrow Mountain State Park is very incomplete and many more improvements are needed to meet public use requirements. Of these needed additional developments, the following will be built with the \$93,000 permanent improvement fund allotted to this park by the 1947 General Assembly:

*Roads*—Completion and paving of existing park roads and construction of access roads; *Parking Areas*—Completion and paving of existing parking areas; *Recreation Lodge*—Equipment and repairs; *Picnicking*—Enlargement of present facilities; *Camping*—Construction of part of a tent and trailer camping area; *Boating*—Construction of boathouse, boat dock and boats; *Maintenance and Service Center*—A part of the buildings, including ranger's residence, work shop, storage building and garage required for maintenance purposes; *Vacationing*—Six simple vacation cabins and necessary utilities.

Additional facilities needed include:

*Vacationing*—Additional vacation cabins and utilities to serve them; *Roads*—Completion of park road system; *Power Line*—Extension of present power line; *Parking Areas*—Enlargement of present parking areas;



*Group Camping*—Complete camp for organized camping; *Camping*—Completion of public camp grounds; *Maintenance and Service Center*—Construction of additional buildings required to complete maintenance center; *Picnicking*—Further enlargement of public picnic grounds; *Hiking*—Completion of marked foot trail system; *Nature Study*—Small museum, nature trails, trailside shelters; *Riding*—Stable and bridle trails.

*Mount Mitchell State Park:* Mount Mitchell State Park, in the Black Mountains of Yancey County, is the oldest of North Carolina's State Parks, having been established in 1916. It has an area of 1,224 acres and includes Mount Mitchell, the highest peak in Eastern United States, and the last of the virgin spruce and balsam forest that once clothed the slopes of the Black Mountains. Major use facilities now available include the stone lookout tower atop Mount Mitchell itself, temporary arrangements for rough camping and a partially completed trail system. In June, 1948, a new service was provided for the public with the opening of the refreshment stand near the top of Mount Mitchell.

The road connecting Mount Mitchell with the Blue Ridge Parkway was completed by the State Highway and Public Works Commission in the spring of 1948 and now there is a hard surface all-weather road from the Parkway almost to the top of Mount Mitchell. This has been one of the factors in the considerably increased attendance at Mount Mitchell during the latter part of this biennium.

With the \$50,000 appropriated to Mount Mitchell State Park for Additions and Betterments by the 1947 General Assembly, the construction of a picnic area and camping area was begun in the spring of 1948. It is planned to complete these two much needed public use facilities in time for use during the summer of 1949. Other work to be done with the Additions and Betterments fund will include improvements to the tower on top of Mount Mitchell, construction of the restaurant wing of the proposed inn and improvement of foot trails.

With the \$56,000 allotted to Mount Mitchell State Park from the 1947 permanent improvement fund, the following is planned:

*Land Acquisition*—Purchase of adjoining tracts necessary for proper development and protection of the park; *Maintenance and Service Center*—Construction of rangers' residences, garage, storage building and work shop; *Hiking and Nature Study*—Improvement of foot trails and construction of small museum; *Fire Protection*—Reconstruction of fire trails.

While the improvements to be built with Additions and Betterments and Permanent Improvement Funds will do much to improve service, they fall far short of providing the minimum facilities necessary, and for reasonably adequate service to the public the following additional improvements are required:

*Inn*—Small hotel to provide overnight accommodations for the many visitors who request them; *Telephone Line*; *Land Acquisition*—Purchase of additional land not provided for in the 1947 funds; *Parking Areas*—Construction of additional parking facilities; *Group Camping*—Youth hostel for use of organized groups; *Fire Protection*—Construction of truck and fire trails.



*Pettigrew State Park:* Pettigrew State Park is located in Washington and Tyrrell Counties on the shore of state-owned Lake Phelps, the second largest natural lake in the State. Its land area is two hundred acres and includes portions of two old plantations—Bonarva and Somerset. The original Collins House and other buildings are still standing on the Somerset land.

No recreational facilities have been developed at Pettigrew State Park and public use consists mainly of visiting the Collins House and the other historic buildings on the park and fishing. Lake Phelps has developed an excellent reputation for fishing and anglers from many parts of the State use it.

On December 10, 1947, the United States gave the Department a quitclaim deed for the land now included in the park. This deed replaces the 99-year lease under which the Department formerly held the property.

During the biennium, one water gate was constructed at the head of the Transportation Canal and some of the materials for replacing two other gates were purchased. Lack of funds prevented actual construction of these gates, but they will be built with permanent improvement funds.

When the \$30,000 allotted to the park from the 1947 permanent improvement fund is made available, the following projects will be built:

*Inn*—Remodeling and enlarging of Community Building as a small hotel to meet demands of anglers for meals and sleeping accommodations; *Boat Pier*; *Water Gates*.

To provide for public recreational use and restore the historic Somerset Plantation buildings, the following additional work is required:

*Camping*—Camp grounds equipped with water and sewer sewer systems and tent and trailer sites; *Boating*—Docks, boathouse and boats for fishermen; *Maintenance and Service Center*—Superintendent's quarters, garage, work shop; *Historical Restoration*—Complete restoration and refurnishing of Collins House and other buildings; *Picnicking*—Picnic area with tables and benches, shelters, fireplaces, water supply and toilets; *Land Acquisition*—Purchase of adjoining tracts.

*Rendezvous Mountain State Park:* Rendezvous Mountain State Park, in Wilkes County, 15 miles northeast of Wilkesboro, contains 142 acres. On the site now occupied by the park, a company of 225 men was assembled and marched to Kings Mountain where they fought in the Battle of Kings Mountain. This park was established to commemorate this event. Because of its small area and steep topography, no recreational developments have been built at Rendezvous Mountain State Park, and as the area now stands, it is little suited for such development.

*Singletary Lake Group Camp:* This area includes state-owned Singletary Lake and approximately 1,000 acres within the Bladen Lakes State Forest. It is operated by the Branch of State Parks primarily for camping by youth agencies. The major recreation feature there is the group camp which accommodates 100 campers.

The camp was occupied during every week of the summers of 1946 and 1947, and has been reserved for almost all the summer of 1948. The youth organizations which used the camp were:

Cape Fear Area Council, BSA, Wilmington  
 Farm Boys Forestry Camp—Statewide  
 Greene County 4-H Club, Snow Hill  
 Open Road Pioneers Club, Asheboro  
 Pioneer Camp, Wilmington Presbytery, Wilmington  
 Singletary Lake Bible Conference, Winnabow  
 Young Friends Activities Committee, Guilford College

The maintenance program has been continued and the condition of existing buildings and utilities has been much improved, except for the swimming pier which is beyond repair and must be replaced. This maintenance work will be continued and the improvements kept in good condition.

Development for group camping is incomplete and to meet the demands for public use facilities, additional improvements are required. Of these, the following will be built with the \$17,000 allotted to this area from the 1947 permanent improvement fund:

*Swimming Pier; Storage Building; Work Shop.*

In addition, the following are much needed:

*Additional Buildings at Present Group Camp*—Camp Office, craft shop, help's quarters, unit lodge; *Group Camp*—Additional complete group camp.

*Town Creek Indian Mound:* Located at the junction of Town Creek and Little River in Montgomery County, Town Creek Indian Mound has an area of 1.1 acres and includes an Indian mound and part of an Indian village site. It is administered from Morrow Mountain State Park and because no actual restoration work has been done, it, as yet, receives very little public use.

The careful archaeological research and excavation done at this area some years ago revealed it to be one of the most important Indian village sites in the State and, when properly restored, it will be of great interest and value to the public. None of the 1947 permanent improvement appropriation was allotted to this area and the following work must be done to put it in shape for public use:

*Completion of Archaeological Research and Excavation; Acquisition of Additional Land; Restoration of Village Site and Mound; Construction of a Museum; Construction of a Maintenance and Service Center; Construction of Parking Areas.*

*State Lakes:* By Legislative Act, the Department is held responsible for the administration of seven state-owned lakes. Of these, Jones Lake, Lake Phelps, Singletary Lake and Salters Lake are within the boundaries of State parks or State recreational areas and are administered under established State park policies. Black Lake, adjacent to Bladen Lakes State Forest, is similarly administered.



Administration of White Lake in Bladen County and Lake Waccamaw in Columbus County is much more difficult because the Department owns no land on the shores of these lakes, both lakes receive heavy public use and both support a number of private enterprises. These all make difficult good administration of White Lake and Lake Waccamaw, especially since the varied uses made of the lakes often conflict with each other.

Despite these obstacles, administration of the lakes was greatly improved during the biennium and was better handled than ever before. The two things that made improved administration possible were the establishment of comprehensive and detailed State Lakes Regulations and an increased budget for these lakes. The budget came partly from increased receipts from the fees set up in the State Lakes Regulations. With these funds, better patrol equipment was purchased, buoys were installed to mark a safety zone for bathers and a warden was employed during the summer months at each lake. To further improve administration and provide continuous supervision, the Senior Park Warden in charge of Jones and Single-tary Lakes was made responsible for the administration of White Lake in addition to his other duties.

Both of these lakes are very valuable recreational resources and the State should, by all means, acquire large tracts of land on the shores of each to insure public access and use of the lakes.

#### NEW STATE PARKS:

*Hiwassee Lake State Park:* On February 1, 1948, a three-year lease was executed between the Tennessee Valley Authority and the Department for 834 acres on the shores of Hiwassee Lake. Included in the improvements leased is the entire construction village of Hiwassee and the utilities to serve the village. The terms of the lease provide that the Department may either renew the lease for an additional period of 19 years or secure permanent possession under deed.

Located in the southwest corner of Cherokee County, the park includes excellent mountain scenery and has the makings of a good State park when properly developed. Present public use facilities include 16 cabins which have been equipped for vacation and overnight use, boating, fishing, hiking and picnicking and a limited amount of rough camping. Boats, fishing equipment and similar services are provided by a concessionaire under a contract entered into on June 1, 1948.

Public use of Hiwassee Lake State Park has been heavy. The present cabins have proved to be far too few to accommodate requests for vacation facilities and many more requests were denied than were filled. Requests for other accommodations and uses, such as tent and trailer camping, could not be met because of lack of facilities.

Much maintenance is necessary to put the property in good condition and maintenance work was undertaken as soon as the park was turned over to the Department. Some of the buildings have been repaired and painted and repairs have been made to roads and utilities.



The present improvements in the park are not only inadequate but, because they were designed to serve as a construction village, are not well suited for park use. To provide the facilities needed for public recreational use, the following should be built soon:

*Recreation Lodge*—Building, including restaurant, park headquarters, and rooms for meetings, lectures and other gatherings; *Camping*—Camp grounds for tent and overnight camping with outdoor fireplaces and central washhouse; *Parking Areas*; *Roads*; *Maintenance and Service Center*—Superintendent's and rangers' quarters, garages, work shops, and equipment and storage buildings; *Picnicking*—Picnic grounds, including tables and benches, outdoor fireplaces, picnic shelters, water and toilet facilities; *Vacationing*—30 small housekeeping cabins; *Telephone Line*.

#### PROPOSED STATE PARKS:

The North Carolina State Park System is far from complete. The present State parks are inadequately developed and even if fully developed would not meet the recreation needs of all the people in the State. To do this, additional State parks must be acquired and established. Recommendations for additional State parks needed are given in the Park, Parkway and Recreational Area Study of North Carolina and are as follows:

##### *For the White Population*

1. State Park in Carteret County adjacent to and combined with Fort Macon State Park.
2. State Park on the Atlantic Ocean in New Hanover or Brunswick County.
3. State Park in Burke County.
4. Recreational Area on Shores of White Lake.
5. State Park in Henderson County.

##### *For the Negro Population*

6. State Park or State Recreational Area in the Piedmont, probably in the southern part of Davidson County or in Randolph County.
7. State Park on the Atlantic Ocean, North of Wilmington and South of Carteret County.
8. State Recreational Area in Greene or an adjoining County, centrally located to the negro population in the coastal plain counties.

From time to time, investigations of possible areas have been made. The following three areas in particular have been carefully studied:

*South Mountains State Park*: An area in the South Mountains of Burke County, after careful examination was definitely approved for inclusion in the State park system several years ago and the preliminary work connected with the establishment of this park was begun just before the war. Nothing further has been done to acquire this area, but it should, by all means, be added to the State park system to serve a large section of the State now without such facilities. Establishment of South Mountains State Park would carry out Recommendation No. 3 above.

*Smith Island:* This area, also known as Baldhead Island, has been carefully examined and would make an exceptionally fine ocean front State park. Located at the mouth of the Cape Fear River, it has the best of possibilities for State park development.

*Fort Caswell Area:* Fort Caswell, a U. S. Navy installation during the war, has also been carefully investigated as a possible State park area and efforts have been made to secure it from the U. S. Navy. These efforts have not been successful because terms under which it would be leased to the State were not acceptable. This particular area by itself is too small for a State park, but it might have some value as an historical area because of Fort Caswell. It does not have the necessary qualifications for a much needed large State park on the Atlantic Ocean.

In the past, the Department has had to depend largely upon gifts of land for State park purposes. This dependence on gifts has not been entirely satisfactory and greatly hampers and delays the establishment of a complete State park system. Not until a State park land purchase fund is provided will it be possible to add to the State park system in an orderly manner.

#### PLANNING PROGRAM:

Planning of the North Carolina State Park System has been very much delayed during this biennium by the difficulty of securing competent planning personnel with the salaries set up in the budget. Not until April 4, 1948, was it possible to locate a competent Landscape Architect and a Civil Engineer was not employed until May 1, 1948, thus almost a year's time was lost.

Since the employment of these two men, excellent progress in planning has been made. Plans prepared during the short while that these men have been employed include the master plan for Cliffs of the Neuse State Park and working plans for the main park road and parking area there; detailed plans for new signs at all State parks; development and working plans for a public picnic ground and a public camp ground at Mount Mitchell State Park; and work on revisions of the master plans for Mount Mitchell and Crabtree Creek State Parks.

#### CAMP LEADERS AND COUNSELORS AND COMMUNITY RECREATION LEADERS TRAINING CAMP:

The Branch of State Parks in cooperation with the North Carolina Recreation Commission conducted a training camp for camp counselors and leaders and municipal recreation workers at Crabtree Creek State Park from June 13-19, 1948. This, the first training camp of its kind in the State, was acclaimed as a highly successful public service by those who attended. Almost 50 persons took the training offered and included persons from Hickory, Morganton, Charlotte, High Point, Reidsville, Durham, Fayetteville, Raleigh and other communities. Included in the curriculum offered were such subjects as nature study, arts and crafts, play ground organization, health and sanitation, safety, counseling and water front activities. It is planned to make this training camp an annual institution.



## LEGISLATION:

By far the most important legislation affecting State parks was the appropriation of increased maintenance and operating funds and permanent improvement funds. The increased maintenance and operating budgets are making it possible to do a much better job of operating and maintaining present State parks than has ever before been the case. The \$500,000 permanent improvement appropriation will, when released for expenditure, provide some very much needed improvements. This fund will not, however, finance full development of the existing State parks.

The General Assembly of 1947 passed a bill making it possible to have State parks employees commissioned Special Peace Officers by the Governor. This act has aided considerably the proper operation of the State parks.

## RECOMMENDATIONS:

Public demands on the North Carolina State Parks far exceed facilities available. The standards of development and operation are far below those required for the service and usefulness the citizens of North Carolina expect of their State parks. The steps that must be taken to improve the State Parks System are:

1. Adequately finance the system. There should be an annual appropriation for operation and maintenance of not less than \$175,000, a permanent improvement budget of at least two and one-half million dollars, and a land acquisition fund sufficient to acquire additional State parks needed.

2. Bring the personnel of the State parks organization up to generally accepted minimum standards. To do this, the first requirement is the establishment of a salary scale that compares favorably with the salaries paid by private business for similar services.

3. Complete development of *existing* State parks. (Outlines of the additional development needed are given at the end of the reports on each State park.)

4. Complete land acquisition at *existing* State parks.

5. Secure land for new State parks, concentrating on those new State parks needed most.

6. Develop the new State parks.

In carrying out these steps, the policies, procedures and recommendations in the Board-approved *Park, Parkway and Recreational Area Study of North Carolina, (1938)*, should be followed closely. These policies, procedures and recommendations were evolved only after long and careful study by persons experienced in the work and are a sound plan for the North Carolina State Park System.



# DIVISION OF MINERAL RESOURCES

## INTRODUCTION

The mineral resources of North Carolina consist essentially of non-metallic materials. Such mineral resources while important in time of war are equally and often more important in time of peace during periods of prosperity and industrial development. As a result, during the biennium July 1, 1946, through June 30, 1948, there was increased interest and new developments in every line of the mineral industry of the State with the single exception of sheet mica. Sheet mica, which reached an all time high in the State in both interest and value during the war years, had declined to normal peace-time conditions by the beginning of the biennium. Ground mica, along with the other mineral resources of the State, continued to increase in interest and value throughout the biennium. As a result, the Division of Mineral Resources was called upon for an unusual amount of information, advice and service by the mineral industry of the State during the past biennium.

Personnel problems were less acute during the past biennium than in former years. J. L. Stuckey, State Geologist; E. Willard Berry, Associate Geologist (part time); and Philip N. Sales, Senior Chemist, served continuously throughout the biennium. T. G. Murdock, Assistant State Geologist, resigned October 18, 1947, and was succeeded by Sam D. Broadhurst on January 7, 1948. W. A. White served as Assistant Geologist from June 16 through September 15, 1946. Young men qualified as field assistants and interested in summer employment again became available during the biennium. A number of such were employed, during the summers of 1946, 1947 and 1948, as field assistants on special projects and investigations.

The work of the Division of Mineral Resources is divided into two main classes: (1) General—in which inquiries are answered, available information is furnished interested persons, and services are rendered to the mineral industry; and (2) Systematic Studies—in which detailed investigations are made of specific mineral resources or of specific areas.

## GENERAL

The general services rendered by the Division may be outlined as follows: (1) Replies to inquiries requesting general information on the mineral resources of the State and specific inquiries relative to the value or availability of particular properties. Numerous such letters were answered, many of which led to investigations in the field where further geological advice was given. (2) Examination of mineral and rock specimens sent to the office for identification. Many such specimens were examined during the biennium and the senders were given information as to the identity and value of the materials submitted. This type of work is

considered important and prospectors are encouraged to send in specimens for examination. Through the examination of such specimens, some of our most important mineral deposits have come into production. (3) Field examination of mineral properties at the request of the owners. In addition to this information on specific problems, some 2,200 copies of the Division's technical publications have been sent to interested persons. These publications furnish more detailed and systematic information on the mineral resources of the State. There has been a demand for many other publications no longer in print and also for reports on many materials for which such reports have never been prepared. The best means of securing the proper development and utilization of the State's mineral resources is to have specific information available in printed form to furnish interested persons and industries. The publication of such reports is being pushed as fast as funds and personnel will permit.

The Division has cooperated as fully as possible with mining companies, individuals and public agents in furnishing information and advice on mineral problems. Such advice and assistance has covered coal, limestone and marl, stone, sand and gravel, clay and shales for use in structural clay products, shales for producing lightweight aggregate, and others too numerous to mention here. Every possible effort has been made to cooperate fully with municipalities, industries, State departments, institutions, and divisions on problems of a geological nature. Among these have been the location of many well sites for securing adequate water supplies from ground water sources. The Division has also cooperated with State and Federal agencies on problems relating to soils and geology. All available information was placed at the disposal of the U. S. Bureau of Mines in its program of work in the State and aid and assistance was given on problems relating to many minerals. A systematic search for oil and gas was continued during the first year of the biennium. All available information and every possible aid available through the Division have been furnished those interested in the program.

## SYSTEMATIC STUDIES

From the long-time viewpoint, the most important part of the work of the Division of Mineral Resources is the systematic and continuing program toward surveying the mineral deposits of the State and mapping its geology. Whatever time is not used in performing the general routine services described above is utilized toward this objective. Detailed geological studies are made in the field and comprehensive reports are published describing the findings.

The regular members of the division staff carried out systematic studies on a wide variety of minerals as shown by the list of publications given below. J. L. Stuckey did work leading to publications on kaolin, industrial and ceramic minerals. T. G. Murdock prepared a report on the mining industry of North Carolina covering a period of several years, investigated building stones, sand and gravel, and spent considerable time on cooperative projects with the Tennessee Valley Authority. He carried out a study and



completed a report on The Geology and Mineral Resources of Guilford County. E. Willard Berry completed a study of the Marls and Limestones of Eastern North Carolina and revised the geological map of the Coastal Plain which was made a part of the report. This map of the Coastal Plain was badly needed and should be of real value to persons interested in the geology and mineral resources of that area. He kept in close contact with explorations for oil in eastern North Carolina and the investigations and developments in the Deep River Coal Field and gave advice and assistance when possible.

Much of the systematic investigation of the State's geology and mineral resources is carried out under cooperative agreements with various Federal agencies. Such cooperative agreements are of importance to the State in two ways. First, they make available the knowledge and experience of outstanding geologists, and, second, they practically double the State's appropriation for such work, as cooperative agreements are usually carried out on a dollar for dollar basis or a man for man basis.

*Cooperation United States Geological Survey:* During the biennium, formal cooperation has been carried on with the U. S. Geological Survey on ground water investigation and geological and mineral studies.

As a part of the ground water study program, Bulletin 55 "Geology and Ground Water in the Greensboro Area, North Carolina" was published, and field work on the area covering Mecklenburg, Cabarrus, Gaston, Lincoln, Cleveland, Rutherford and Polk Counties was completed. Flood plain deposits in a part of the Piedmont Area were studied as a source of ground water and a manuscript has been prepared. A special study of the Ground Water Resources of the Elizabeth City Area was made and a report published. In addition, a number of observation wells have been regularly checked to determine the effect of precipitation, and withdrawal of ground water, on the water table.

The geology and mineral study program has been devoted largely to pegmatite areas in western North Carolina. The geology and feldspar resources of the Bryson City District were mapped and studied in detail. A complete report, including a geological map, should be available at an early date. Detailed areal geological mapping was continued in the Spruce Pine District, and a detailed study of the pegmatite deposits in the Brevard District was begun.

*Cooperation Tennessee Valley Authority:* A wide range of cooperative projects was carried out with the Tennessee Valley Authority during the biennium. Field work and a final report on the Talc Deposits of the Murphy Marble Belt were completed. A geological map of the area, in four sections, has been published. It will be released as a part of the published report. The barite deposits of the Kings Mountain District were studied and an article entitled "New Barite Possibilities Revealed in the Carolinas" by E. C. Van Horn has been accepted for publication by a leading technical journal. The scrap mica resources of the Shelby-Kings Mountain District and the Franklin-Sylva District were studied as a source of material for producing ground mica. Manuscript concerning this work is being edited



for publication. Examinations of clays, shales and slates as a source of materials suitable for the manufacture of light weight aggregates were carried out in several areas of the State. The Watauga formation of Madison County appears most promising at the present stage of the work.

The so-called "Alaskite" of the Spruce Pine District has become, in recent years, an important source of feldspar for the glass industry. A detailed investigation was made of the better located deposits of this material and each deposit examined was appraised as to its suitability for commercial development. One of the better deposits near Spruce Pine is being utilized for a new feldspar flotation plant. During the summer of 1948, three co-operative projects were begun, all of which will continue into the next biennium. A detailed examination of the silica resources of the State was started. North Carolina contains deposits of quartzite, vein quartz and sand which are being investigated. The Hot Springs District of Madison County contains complex geology and interesting mineral deposits. A project to map the geology and examine the mineral resources of the district has been started. In recent years, halloysite, a mineral belonging to the kaolin group, has been discovered in interesting amounts at several places in Western North Carolina. A detailed study of the occurrence of this interesting mineral has been started.

The Minerals Research Laboratory, Asheville, North Carolina, which is being operated cooperatively by the North Carolina State College, the Tennessee Valley Authority and the North Carolina Department of Conservation and Development, completed at the end of the biennium two years of successful operation in its new building at 180 Coxe Avenue. During that period much equipment was added to the laboratory and an important program of mineral dressing was carried out. A process for producing feldspar by flotation from alaskite was worked out. The Feldspar Flotation Company has been organized and is building a modern plant at Spruce Pine to produce feldspar by this process. An intensive program on the crushing, concentration and grinding of mica has been carried on. The concentration of talc, kyanite, sillimanite, barite and other minerals has been investigated. Work has been performed on the problem of bleaching talc, mica, feldspar, kyanite and other minerals in order to produce a whiter finished product. The work done in the laboratory has been well received throughout the area and, as a result, the laboratory has become of major importance to the mineral industry of the State.

*Non-Cooperative Work:* Much work has been carried on in the State by the Federal agencies, mining and development companies which cannot be classed as cooperative with this department. Every attempt has been made to keep in contact with such work and give aid and assistance when possible. The U. S. Bureau of Mines through its Mining Branch has carried out further drilling at Cranberry and on the molybdenum deposit of Halifax County. Some drilling has been done on tungsten prospects in Cabarrus County. Work has been started on an examination and evaluation of many abandoned metal mines and prospects in the State. The Metallurgical Branch has improved the equipment in the Regional Station on the North Carolina State College campus and made plans for a larger program of work. Through funds appropriated by the U. S. Congress in 1946, the Coal

Branch has carried on a drilling program in the Deep River Coal Field. The U. S. Geological Survey working in cooperation with the U. S. Bureau of Mines has carried on a geological mapping program and a detailed study of the entire area of the Deep River Coal Field.

The Walter A. Bledsoe Company and Associates organized the Raleigh Mining Company, a well-financed organization for mining coal in the Deep River Coal Field. The old Carolina Coal Mine in Chatham County is being reopened on an impressive scale.

In 1947, the U. S. Geological Survey began a geological study of the character, age, relations and areal distribution of the granites of North Carolina. A program covering the areal mapping and study of structure and stratigraphy of the Great Smoky National Park Area was also begun.

Drilling for oil in eastern North Carolina continued through the first year of the biennium. On March 17, 1947, the Standard Oil Company completed its Esso Well No. 2 at a depth of 6410 feet in the Albemarle Sound. No oil was found and the company abandoned its drilling program in the State. A report covering the geological and geophysical work done in the State in connection with its drilling program has been prepared and submitted to this department by the Standard Oil Company.

During the period July 1, 1946, through June 30, 1947, the Carolina Petroleum Company completed four wells in Carteret County, one in Craven County and two in Pamlico County. None of these wells secured oil and the program of drilling by this company was discontinued. Recent reports indicate that interest in securing oil in North Carolina is not dead, and that other groups may drill for oil in the State.

During the biennium, the Division has published the following reports: Bulletin 50, "The Vermiculite Deposits of North Carolina," by Thomas G. Murdock and Charles E. Hunter, 1946.

Bulletin 51, "Ground Water in the Halifax Area, North Carolina," by M. J. Mundorff, 1946.

Bulletin 54, "Marls and Limestones of Eastern North Carolina," by E. Willard Berry, 1948.

Bulletin 55, "Geology and Ground Water in the Greensboro Area, North Carolina," by M. J. Mundorff, 1948.

Information Circular 5, "The Geology and Mineral Resources of Guilford County," by T. G. Murdock, 1947.

Information Circular 6, "A Possible New Source of Ground-Water Supply in the Elizabeth City Area, North Carolina," by M. J. Mundorff, 1947.

The following papers based on the work of the Division were published in technical journals:

Stuckey, J. L., Hunter, C. E., and Murdock, T. G., "Industrial Minerals of North Carolina," Mining and Metallurgy, vol. 28, July 1947.

Stuckey, J. L., "Kaolins of North Carolina," A.I.M.E. Technical Publication 2219, Mining Technology, vol. 11, July 1947.



- Stuckey, J. L., Murdock, T. G., and Hunter, C. E., "Many Ceramic Minerals Plentiful in North Carolina," *The E.S.C. Quarterly*, vol. 5, no. 2-3, 1947.
- Stuckey, J. L., "Huronian Slate Used in Duke University Buildings Defined," *The E.S.C. Quarterly*, vol. 5, no. 1, 1947.
- Murdock, T. G., "Industrial Minerals of Ethiopia," *Technical Publication 2356, Mining Technology*, vol. 12, March 1948.
- Murdock, T. G., "State's Limitless Store of Non-Metallic Minerals," *The E.S.C. Quarterly*, vol. 5, no. 1, 1947.
- Berry, E. Willard, "North Carolina Coastal Plain Floor," *Bulletin of the Geological Society of America*, vol. 59, 1948.
- Mundorff, M. J., "Ground Water," *The E.S.C. Quarterly*, vol. 5, no. 4, 1947.

### RECOMMENDATIONS

Prior to the beginning of World War II the State of North Carolina was spending very little on the study of its geology and mineral resources. During the war, however, the State took and is maintaining a position of leadership in this field. As a result, Federal Government agencies such as the U. S. Geological Survey, the Tennessee Valley Authority and the U. S. Bureau of Mines, which formerly did little work in the State, have become interested in and are spending important sums of money on the study of geology and mineral resources. The amounts being spent by these agencies, which has been brought about by the State's leadership, is well in excess of State expenditures.

North Carolina is in the early stages of a major industrial development and expansion. Non-metallic or industrial minerals, such as constitute the bulk of the State's mineral resources, always reach their major importance during peace time industrial expansion. Information on the geological formations and the topography of the State are of major importance in the development of the State. Geological and topographic maps are necessary to the full development and utilization of the mineral resources of the State. Such maps, however, are often more important to a program of industrial expansion and development than they are to the mineral industry. The lack of such maps is a definite handicap in attracting new industrial prospects to the State.

It is recommended (1) that the State continue to support and increase its program of geological and mineral investigation. If the State continues to maintain its position of leadership and keeps the Federal agencies, mentioned above, interested in and cooperating in the program of mineral and geological investigation, it means that State expenditures for such work will be more than matched. It is recommended (2) that a major program of topographic mapping be authorized. State expenditures for topographic mapping will be matched on a dollar for dollar basis by the Topographic Branch of the U. S. Geological Survey. The expenditures for such work will be returned to the State many times in industrial development and expansion.



## DIVISION OF STATE ADVERTISING AND NEWS

This report covers the most active period in the ten-year history of the Division of State Advertising. In the two years ending July 30, 1948, more State advertising was purchased, more literature created and published, more inquiries received and more substantial results obtained.

### DIRECT ADVERTISING

In the biennium, \$211,066.42 was expended for advertising space in newspapers and magazines. The division has continued its policy, as laid down by the Board, of using only media with audited circulation. The following publications were used for:

#### *Travel Advertising*

##### *Magazines:*

Colliers	Look	Redbook
Field and Stream	National Geographic	Saturday Evening Post
Harpers	Outdoor Life	Sports Afield
Holiday	Parents	Time
Hollands	Pathfinder	Travel and Camera
Instructor		Yachting

##### *Newspapers:*

Akron Beacon Journal	Detroit News
Atlanta Constitution	Florida Times Union
Atlanta Journal	Greenville News Piedmont
Augusta (Ga.) Chronicle	Indianapolis Star
Baltimore Sun	Jacksonville Times Union
Baltimore Sun American	Knoxville News Sentinel
Birmingham Age Herald	Louisville Courier Journal
Boston Globe	Memphis Commercial Appeal
Boston Herald Traveler	Miami Herald
Brooklyn Eagle	Miami News
Charleston News and Courier	Mobile Press Register
Chattanooga News-Free Press Times	Montgomery Advertiser
Christian Science Monitor	Nashville Banner Tennessean
Chicago Tribune	Newark News
Cincinnati Enquirer	Newark Star Ledger
Cincinnati Times Star	New Orleans Times Picayune
Cleveland Plain Dealer	New York Herald Tribune
Cleveland Press	New York Sun
Columbia Record and State	New York Times
Columbus Dispatch	New York World Telegram
Daytona Beach News Journal	Norfolk Virginian Pilot
Detroit Free Press	Orlando Sentinel Star

*Newspapers—Continued*

Philadelphia Bulletin  
 Philadelphia Record  
 Pittsburgh Post Gazette  
 Pittsburgh Press  
 Richmond News Leader  
 Richmond News Leader-  
     Times Ditspatch  
 Roanoke Times  
 Savannah News  
 St. Louis Globe Democrat

St. Louis Post Dispatch  
 St. Petersburg Times  
 Tallahassee News Democrat  
 Tampa Tribune  
 Texas Daily Times Herald  
 Trenton Times Advertiser  
 Washington Post  
 Washington Star  
 Washington Times Herald  
 Wilmington, Del., Journal

*Industrial Advertising*

American Wool and Cotton Reporter	News Week
Blue Book of Southern Progress	New York Times
Business Week	Time
Fortune	U. S. News
Manufacturers Record	Wall Street Journal
Nation's Business	

*Agricultural Advertising*

Country Gentleman	Farm Journal
-------------------	--------------

**RESPONSE**

Inquiries have steadily increased and reached the largest number ever received in a single two-year period. From July 1, 1946 to July 1, 1948, 133,698 inquiries were received, an average of 234 letters per working day. This does not include inquiries from industrial advertisements. (The industrial phase of the campaign is reported by the Division of Commerce and Industry.)

The Advertising and Publicity campaign on behalf of the development of North Carolina as a travel state has been highly successful. It is estimated that in 1947, travelers in North Carolina expended \$192,000,000, of which around \$150,000,000 was expended by out-of-state motorists visiting this State. This gross is estimated to have returned over \$15,000,000 directly to the State Treasury in addition to revenue returned to city and county governments.

Expansion of the travel business has resulted in substantial investments for facilities, and it is estimated that over a quarter billion dollars is now invested in such facilities, about half of it in hotel and other types of accommodations. As this report is written, the building of hotels, inns, motor courts, and similar facilities is continuing briskly.

In the past two years, interest in North Carolina as a place in which to settle for work or retirement has increased in ratio to the acceleration of the advertising program.

While most inquiries along this line are from persons responding to our agricultural campaign, there has also been a substantial number of persons who want to buy or build homes for retirement, or want to find homes and employment in this State.



In handling this type inquiry, the Division issues, at irregular intervals, bulletins to real estate dealers and others who then follow-up with definite offers of property. Scores of pieces of property were sold to newcomers through these bulletins. In the past two years, the names of 1,108 prospects have been referred to such follow-up agencies, after the Division had answered their queries about North Carolina living conditions and brought them, in theory at least, to the status of "hot prospects." A substantial number of them were farm settlers. It is anticipated that the agricultural program will become more effective as it becomes easier to obtain and improve good farm property.

### GENERAL INQUIRIES

A percentage of inquiries handled by this Division are from persons seeking general information about the State. Such inquiries deal with the State's government, taxation, climate, schools, highways, laws, history, health, and so on. The Division of Advertising is the clearing house for such inquiries, some of which are referred from other State or local agencies.

### MARINE SPORT FISHING

Two years ago, the Division launched a campaign to popularize salt-water fishing as an attraction to travelers, believing that in the absence of elaborate resort facilities it was the asset most likely to attract immediate returns.

Advertising, publicity and literature have been stepped up on behalf of the campaign with results better than expected. Number of persons inquiring about coastal fishing, number of sportsmen visiting our coast, and the physical facilities for handling this business all have increased by at least 100 per cent. More North Carolinians are making a livelihood from sport fishermen than ever before, and we estimate marine sportfishing already is a \$3,000,000 industry in North Carolina, an income which is almost half the gross income from commercial fishing. This, of course, does not include the substantial income from fishermen using inland lakes and streams. Some 1500 persons are estimated to find employment in catering to sport fishermen, not including those who house and feed them.

We strongly believe that development of this resource is only beginning and that continued advertising of our coastal waters and their abundant and varied contents will result in economic betterment of all our coastal counties.

Beginning as an adjunct to the marine fishing program, definite progress has been made in the planned effort to popularize the sound and river waters behind the east coast for boating recreation. Within the last year a modest campaign aimed at yachtsmen was placed in boating media offering the popular eastern vacation map (with certain additions) also as a boating guide. Intelligent co-operation of eastern Carolinians resulted, at the end of the report period, in the first annual TAR HEELS AFLOAT cruise, participated in by 32 boats and some 200 persons. This campaign will be continued.



## PUBLICITY

North Carolina's publicity program has in the past two years produced articles about the State, its resources and people in almost every newspaper in America, and in most of the leading magazines. From such mass circulation media as SATURDAY EVENING POST and LIFE to small trade journals, the North Carolina story is being constantly told in its many facets. Scores of staff writers and photographers have been invited to the State to do special articles, and it is the division's job to help these visitors collect information and pictures. On the state's story in HOLIDAY, for instance, the Division worked with staff photographers for over a month to collect suitable material, and in the first six months of 1948 alone, it helped SATURDAY EVENING POST crews do four stories about North Carolina.

## PICTURES

The foto file, which we think is the most complete and effective collection of photographs owned by any State, is in constant use. To illustrate articles in newspapers and magazines, for use in encyclopedias, text books, on post cards, maps, calendars, datebooks, for murals, and other display use, this Division in the past two years distributed 32,492 photographs.

## MOVIES

The State's old travelogue movie, Variety Vacationland, is still going strong, and usually the prints are booked weeks in advance. The Division also has two prints of the Standard Oil Company's new travelogue: "Meet North Carolina."

In the past two years, these movies have been shown to 442,105 persons, mostly outside the state, plus 150,000 reported persons in two televised showings. The Esso film, which is handled by that company, has been shown to many thousands more.

## LITERATURE

In spite of the increased cost of printing it has been necessary to produce and print more literature than ever before for use in handling inquiries, for distribution through bulk outlets, and other purposes.

From July 1, 1946 to July 1, 1948, this division has published the following pieces of literature:

Variety Vacationland .....	150,000 copies
Map and Guide to Western North Carolina ....	50,000 copies
Map and Guide to Eastern North Carolina ....	50,000 copies
Dairying (reprint) .....	10,000 copies
Total .....	260,000 copies

In addition to this, the Division distributed several thousand pieces of literature produced by other agencies, such as local chambers of commerce. It also gave source material and editorial assistance to individuals producing pamphlets, booklets, and books of a promotional nature.

# **DIVISION OF WATER RESOURCES AND ENGINEERING**

## **INTRODUCTION**

Bread may be the staff of life, but water is the life blood of civilization. Water has always played an important part in the growth of civilization. North Carolina is fortunate in having an abundant supply of good water and at the present time is collecting a large revenue from the use of water. Water is not only used for a supply of drinking water for towns and cities, but is also necessary in a number of the country's most important phases of economy as agriculture, forestry, manufacturing, power generation, and recreation. In order to make water serve the public to its fullest extent will require study and planning. The service of water may be improved by study and planning, but the water resources cannot be increased by any of man's efforts. This is because the water resources are a function of nature's rainfall. Man's contribution to a plentiful supply of water must be by the conservation route.

Water is not only necessary as a supply for the users but must also be used for the disposal of the waste of civilization. The streams are the logical means of removing the waste, but this offers great problems. With the increase of industries in North Carolina further use of our streams will be crippled as other industries cannot locate on polluted streams. These industrial wastes not only prevent industries from locating in North Carolina but they also destroy life in the streams, create objectional odors and destroy a stream for recreational purposes. Everybody is ready to blame industries for ruining the streams but never think of the dangers arising from domestic sewage. It not only has the same objectional features but also has the possibility of causing dangerous epidemics from water borne diseases.

Due to the lack of personnel this Division has been handicapped. Without personnel it is impossible to give the service that should be expected. During the present biennium most of the personnel has been collecting data on the hydrologic information now in the files and preparing this for publication. The lack of personnel has prohibited this Division from doing other work that is needed and should be done at the present time.

## **PERSONNEL**

At the present time only three employees who were employed before January 1, 1947, are working for the Division. These three are W. H. Riley, Principal Engineer, F. E. Day, Associate Engineer; and Mrs. Sal-laine Upchurch, Stenographer-Clerk. Raleigh T. Daniel resigned on July 31, 1947, to take a position with a private enterprise. This position of Chemist remained vacant until October 27, 1947, when Charles L. Tucker



was secured. The position of Junior Engineer had been vacant until August 19, 1947, when Otho C. Goodwin came with the Division. Mr. Goodwin worked only three weeks and resigned September 8, 1947, giving as a reason that he could not stand the work physically. The position again remained vacant until January 21, 1948, when Gerald Palevsky took the position on a part-time basis in connection with his school work. He held the position until June 1, 1948, or until the end of the school year. Miss Helen Day was secured on a temporary basis for the period of June 1, 1948, to September 14, 1948, as typist. William H. Semple reported on the job on June 6, 1948, as part time engineer filling the position left vacant when Mr. Palevsky resigned. On September 14, 1948, Mr. Semple was released so that the position could be filled by Avery T. Cashion on a full time basis.

The 1947 General Assembly placed the appropriations of the State Stream Sanitation and Conservation Committee in the budget of this Division. Personnel for this work was very hard to secure, but all positions were finally filled and work has been started. George F. Catlett reported to work as Principal Engineer on August 16, 1947. Earl J. Axe, senior engineer, reported for work September 20, 1947. Mrs. Marguerite O. Floyd, Stenographer-Clerk started work September 2, 1947, and resigned May 31, 1948. On June 1, 1948, Miss Susie K. Moore filled this vacancy caused by the resignation of Mrs. Floyd. The Chemist, John W. Crone, reported to work on November 28, 1947, and Louis F. Lawler started work as Junior Sanitary Engineer March 18, 1948.

### STREAM GAGING

All stream gaging work in North Carolina is done in cooperation with the U. S. Geological Survey. On April 30, 1947, E. D. Burchard retired from the position of District Engineer for the U. S. Geological Survey. Mr. Burchard has been with the Geological Survey in North Carolina since 1924 and is the one man that should receive credit for the growth of this important work in North Carolina. Having worked with the water resources for 23 years he knew more about the needs for information about the streams of this State than any other man in the State. Although the State has lost a valuable man in Mr. Burchard, his place has been filled by a very capable District Engineer, E. B. Rice. The U. S. Geological Survey transferred Mr. Rice from Louisiana in July, 1947, where he had been District Engineer.

Under this program the operation and maintenance of 133 regular gaging stations were carried on for all or part of the present biennium. One additional station was added in the Tennessee Valley section. The program is only partially financed through State funds. The Corps of Engineers, U. S. Army, has made \$16,092 available for the fiscal year 1947-48 to finance the operation of the stations they are particularly interested in. The Tennessee Valley Authority has made available \$20,000 and the U. S. Geological Survey has contributed \$3,920 to maintain and operate stations of value to them. Under the requirements of the Federal Power Commission, \$600 is contributed by organizations holding permits from them.



The State of North Carolina is contributing \$27,500 of which about \$500 is furnished by private agencies. This last item of \$27,500 is matched essentially on the dollar-for-dollar basis by the U. S. Geological Survey.

With the program being financed as shown in the preceding paragraph the State cannot expect to have very much authority in deciding what stations shall be continued or discontinued. In the past we have had to allow stations to be discontinued because the cooperating agency had no more need for these stations. Some of these would have proven to be very valuable to the State if they could have been continued. During the bien-nium 1940-42, sixteen stations, mainly in the Piedmont, had to be discontinued as one of the cooperating agencies did not receive enough appropriation to continue their operation. Several of these stations would have been valuable in giving the information on the smaller streams of this section. As an industrial region information of this nature is very much in demand and at the present time is inadequate. The appropriation made by the State for this work cannot take over the operations of stations that are discontinued by another agency as it is hardly sufficient to meet the cost of operation of the State maintained stations.

Owing to the lack of material and personnel, little or no maintenance work was performed at gaging stations during the years of the war, consequently considerable work of this nature has accumulated and will require several years to complete. During the past year, six cable-way structures used for making discharge measurements were re-erected or generally rehabilitated; repairs were made to gage structures and major maintenance work performed at eight stations; and one new station established. The installation of the gage house and cable way was performed by and paid by the Tennessee Valley Authority.

To reduce flood hazards on some rich farming land in the vicinity of Goldsboro, N. C., the Corps of Engineers, U. S. Army made a cut-off in Neuse River. In as much as this cut-off caused part of the flow of Neuse River to by-pass the gaging stations operated at that site, the Corps of Engineers made available funds with which was constructed a new reinforced gaging station about  $2\frac{1}{2}$  miles downstream.

Noteworthy floods occurred in the headwater tributaries of the Cape Fear as a result of heavy rains accompanying the tropical disturbances during September. Also locally heavy run-off resulted from 9.5 inch rain at Greenville, N. C., on September 7, 1947, and in the vicinity of Raleigh, N. C., on September 21, 1947, following a rain of 5.64 inches, 3.83 inches of which fell in two hours. During September maximum stages of record were exceeded at nine gaging stations and new maximum run-off yields were experienced.

In October, a flash flood occurred on the Swannanoa River as a result of an 8.0 inch rain at Mt. Mitchell but no new maxima were established.

Accumulations of one of the heaviest snow falls of record in eastern North Carolina, melted by light rains and warm temperatures, added considerable run-off to already bankfull streams in the eastern Piedmont and Coastal Plain during February and as a result many streams in that area approached within a few feet maximum known stages.

The Waccamaw River, in the extreme southeastern section of the State and typical of coastal plain streams, although not affected by any particular storm, remained above normal to nearly flood stage practically the entire year and in February reached a stage which was the highest recorded for the period 1939-48.

Minor floods again occurred in the Cape Fear, Neuse and Roanoke Rivers and near-flood stage occurred on the Tar following general rains on March 31, 1948, April 1, 1948, of from 1.50 to more than 2 inches over these basins.

Although streams receded very rapidly during May, periodic showers after the end of May have held streams above extreme low-water. No exceptional minima flows were recorded during the year.

### QUALITY OF WATER

This work is done in cooperation with the Quality-of-Water Branch of the U. S. Geological Survey. An agreement with the U. S. Geological Survey was made effective July 1, 1943. W. L. Lamar was sent to Raleigh from Washington, D. C., to set up the laboratory and to carry on the program soon after July 1, 1943. By October 1, 1943, the laboratory was completed sufficiently to allow analyses to be run. The program grew from three daily sampling stations to six and four monthly sampling stations. Mr. Lamar was transferred to Columbus, Ohio, on August 5, 1948, leaving Felix H. Pauszek, who has been in the Raleigh laboratory for about two years, to continue the fine work Mr. Lamar had done on this project.

Industry has made a big demand for analyses on the waters of North Carolina. Since the war, new industries have been seeking sites on which to locate, and old industries have been seeking sites to expand their present operations. A large number of requests from such industries and towns seeking water supplies have been answered by running these analyses along with the regular program. These requests require analyses to be made at the time or within a comparative short time before their requests are made. An analysis made a few years before will not be satisfactory as the chemical character of water can easily change in a year.

The original program called for analyses to be made over the whole State to give a good idea of the mineral content of the water in the State. This program has been completed, and special studies of each river basin have been started. All sampling stations are located along the length of each main stream and as many tributaries as possible. At the completion of this study changes in any stream may be found by fewer sampling stations and still give a good picture of the river as a whole. These analyses will be very valuable in the stream sanitation program and for that reason the sampling will be made to fit in with this program.

A cooperative agreement with the State Board of Health in which this agency agrees to contribute \$2500 per year to have analyses run on public water supplies was made. Industries using small quantities of water can often locate in towns and use these public supplies for their source of water. For this reason all analyses on public water supplies are submitted to this Division.



## BEACH EROSION

During the present biennium, nothing has been done on this important project. North Carolina has only one beach that is publicly owned, and for this reason protective work by the State and Beach Erosion Board cannot be constructed. These protective works are very expensive and will be prohibitive to most owners of beach property.

Fort Macon, which is the only State owned beach, has been eroding at a rapid rate. At a recent conference with the Beach Erosion Board and Corps of Engineers, U. S. Army this project was discussed. The Corps of Engineers has a plan that has been submitted to Chief of Engineers to protect the shipping channel to Morehead City. If this plan is completed the problem of beach erosion will probably be solved at this point.

The erosion from Fort Fisher to Carolina Beach is continuing at a rapid rate. This beach is privately owned. Even if no public money can be spent to build protective work, studies should be made showing the amount of erosion and some attempt should be made to learn about the currents causing the trouble. At the present time the large mound which was originally the main part of the fort has been completely destroyed and the ocean is beginning to endanger the monument commemorating the great battle.

This Division does not have the personnel to make these studies. It will take at least two engineers full time and another part time for the three summer months and additional surveys for a short time each month during the winter. By this method the effects each month could be observed and an over all survey would show the total erosion in the section under observation.

## STREAM SANITATION AND CONSERVATION

This is one of the biggest problems facing this Division at the present time. A large part of the pollution of the streams in North Carolina can be stopped at the present time, but another large part cannot. Some of the most difficult problems are being studied by industries themselves and progress is being made. One of the largest sources of industrial pollution has already reduced its load approximately seventy-five per cent. Others are planning on changes that will make large reductions of the loads they are now putting on the rivers that are carrying away their wastes.

In May 1948, the personnel for this committee was completed and the study of sources of pollution and the amount they contribute to the streams begun. A trailer laboratory has been secured and equipped to make analyses of samples from various streams. This laboratory is moved from place to place so that samples may be brought to the laboratory as soon as possible after collection. If much time elapses between the collecting and analyzing these samples, an accurate determination can not be made. At the present time a study of a section of Neuse River has been made and the study of the Yadkin River has been practically completed. The Tennessee Valley Authority has made a study of the French Broad River and has submitted a report to the Committee.

Tennessee and Virginia have already passed regulatory acts and are making progress in clearing up the streams of their states. South Carolina and Alabama have passed study bills similar to the bill North Carolina passed in 1945. They are making progress in their studies and hope to pass regulatory acts soon.

### MAPPING

A review of the mapping situation in the State indicates the urgent necessity of completing the topographic map of the State. Only a small portion of the State has been adequately mapped at the present time. Most of the present quadrangles in the western part of the State are too old and should be revised. The Tennessee Valley Authority is mapping most of the area in that region, but this is only a small portion of the State. Accurate maps of the State are necessary in the work of this Division in making studies of the water sheds. At the present time accurate drainage areas cannot be determined and this will make any estimate of flow inaccurate. There are no accurate maps of the most industrialized section of the State. This has been a handicap in getting other industries interested in locating in this section. Several industries have not located in North Carolina because an accurate topographic map could not be secured for this section.

The U. S. Geological Survey is the best mapping organization in the United States, and in addition will match on a dollar-for-dollar basis any money spent by the State. There is no other agency that will do the work and pay half the cost of making the maps. The cost of this program may seem high, but the dividends resulting from this expenditure should justify the State in having the work done.

### EVAPORATION RECORDS

The Division has maintained evaporation stations at Lake Michie, Chapel Hill, and Lake Badin, collecting records from land and water surface. During this biennium only two of these stations are operating. The two operating stations have long records and are, for this reason, becoming increasingly important. Due to lack of personnel, we have not been able to make studies of these records, but the collection of the data makes this a worthwhile project. All of the stations are located in the Piedmont section of the State, and in order to get a better picture of evaporation, several stations in the Mountain and Coastal regions are needed.

### PUBLICATIONS

The last publication on the stream flow was published in 1937 and for this reason is out of date. During the present biennium two publications have been released on hydrologic data. These publications give weekly stream flow, maximum, minimum and mean stream flow; maximum, minimum and mean rainfall and temperature on four selected stations; chemical analyses; and a chapter on the ground water in each river basin. This data on the Neuse and Cape Fear River Basins have been released and the same data will be released in the near future on the Yadkin River Basin.



Each year a publication of chemical analyses is released under the title of "Chemical Character of Surface Waters of North Carolina." This publication is Bulletin Number 52 and each year is distinguished by a volume number. Volumes 1 and 2 have already been released, and Volume 3 is now in the hands of the printer.

All of these publications are receiving a remarkable distribution. Requests have been received from as far south as Florida and as far west as California. They are being distributed to all engineers, Chambers of Commerce and those interested in securing industries for the State of North Carolina.





